RAND ARROYO CENTER

AWCF-SMA Contingency Requirements Determination and Resourcing*

"Leveraging AWCF to better support pre-war and contingency operations" IATF

Project Sponsors: DAG-8, DAG-4, AMC
March 2005

*** Army Working Capital Fund, Supply Management Army**

Outline

- **Pre-war and Contingency planning and execution**
- **Pre-contingency requirements determination**
- **OA approval process**
- **“Working” recommendations**

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OIF Repair Part Problems due to War Reserve, Lead Time, and Production Response Misalignment

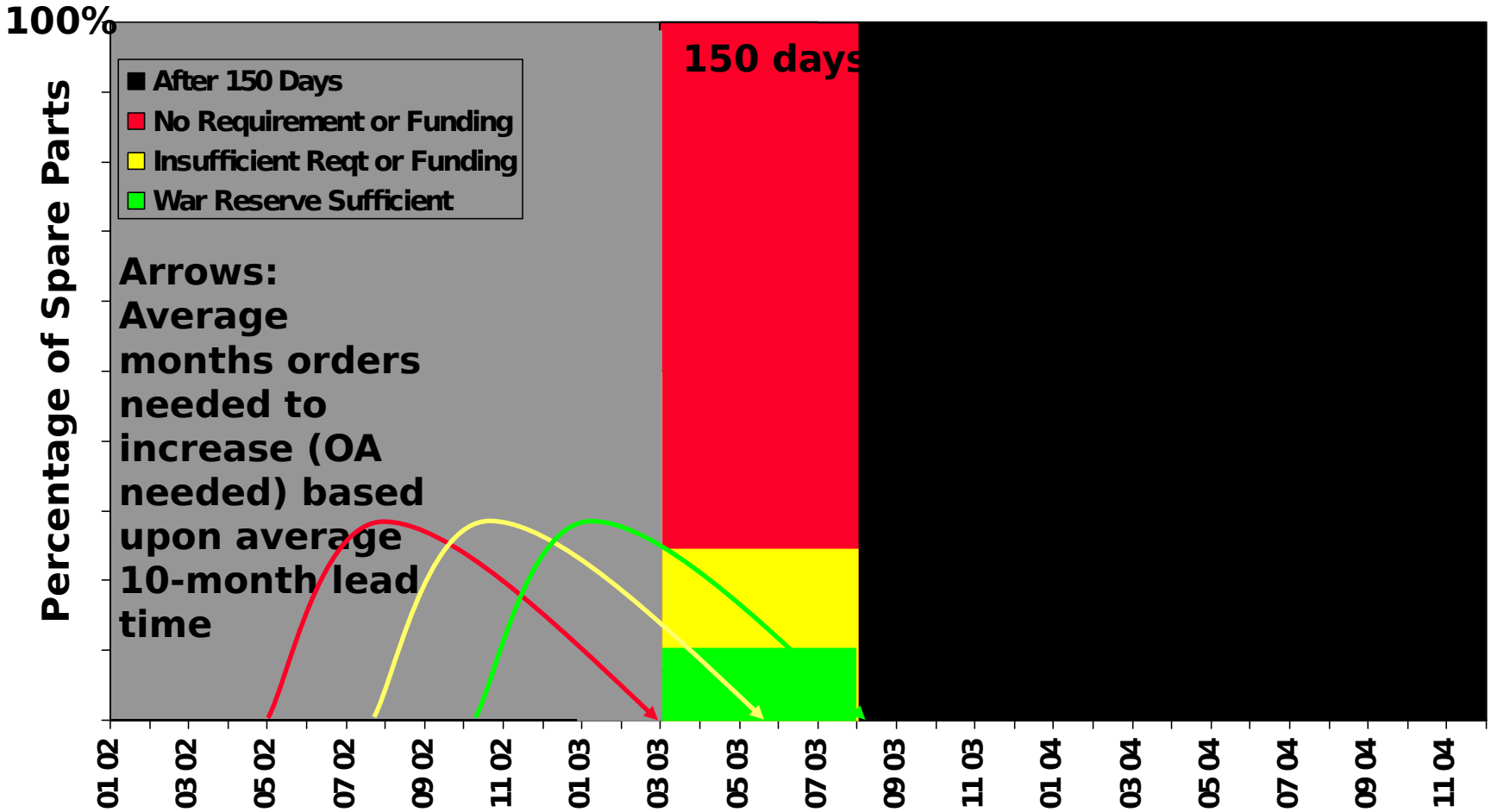
- **WRSI didn't include about half the different types of parts they should have had, including readiness and airlift drivers …**
  - **Data and associated methodological issues**
  - **Requirements based upon first 150 days of a conflict**
  - **Less than 10% of calculated dollar requirement funded**

- **Backorders: very high backorder rate (Army managed repair parts)**
  - **Peaked at 35% in the fall of 2003 and then 36% in December 2004**
  - **Has contributed to degraded equipment readiness**

- **Causes**
  - **Insufficient APS war reserve secondary items (WRSI)**
    - **Requirements determination problems**
    - **Modeling guidance covered limited time horizon**
    - **Limited and untimely funding**
  - **Contingency planning**
    - **Slow requirements determination, "validation," & obligation authority (OA) approval and release process**
    - **Insufficient forecasts of demands and increases in requirements**
  - **Industrial base management and capabilities**
    - **Long lead times**

The Less War Reserve Contributes, the Farther in Advance Funding Is Needed

Percentages notional



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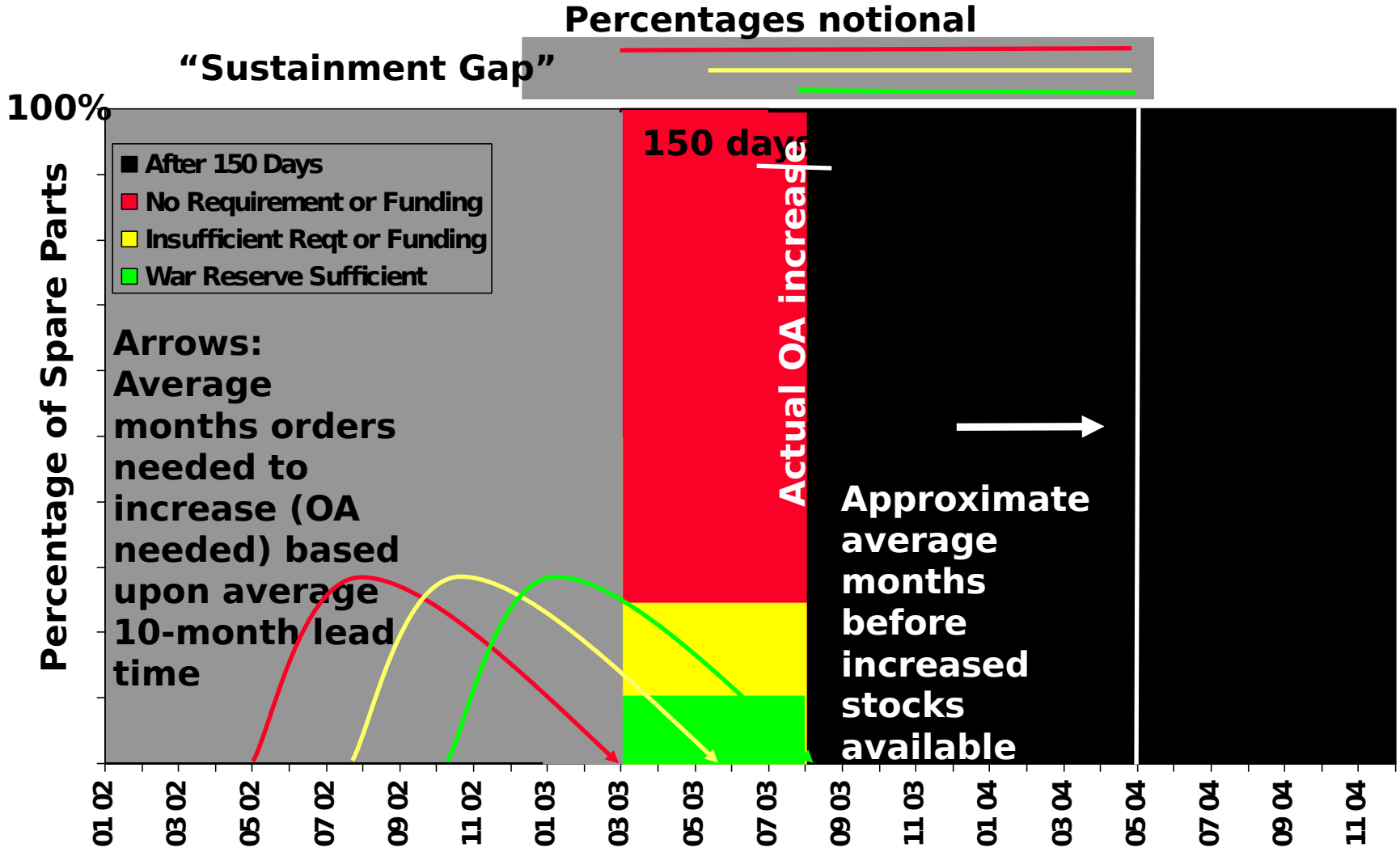
WRSI, Procurement Increase, and Lead Time Misalignment Leads to a "Sustainment Gap"



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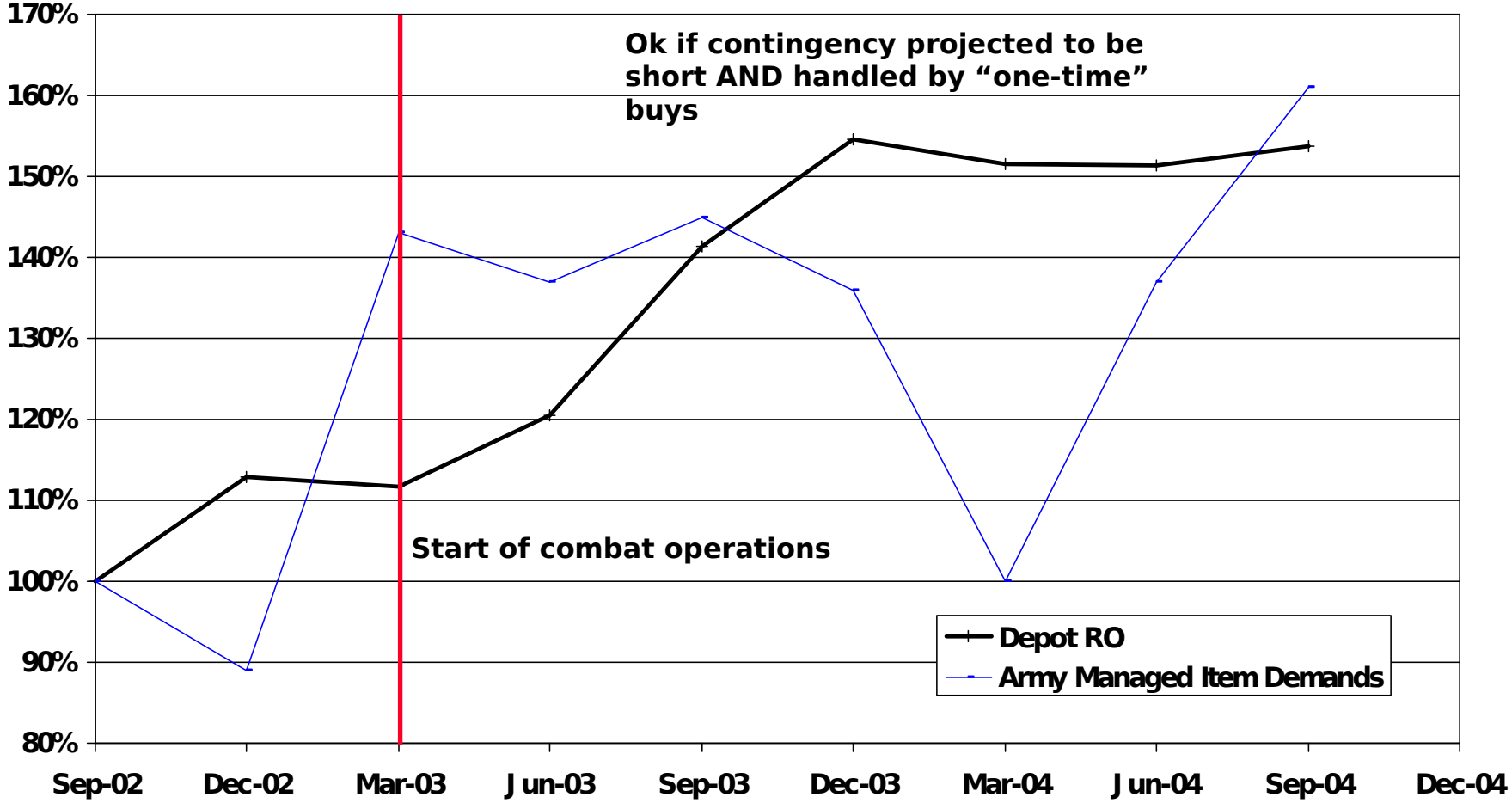
Most of the OIF Inventory Requirement Increase Occurred in Late 2003, Trailing the Demand Increase

AMC Requirements Objective (RO) / Sep 02 RO (Below Depot Excluded)
Army Worldwide SARSS-1 Demands (Army Managed Items Only)—Excludes Depot and Non-A



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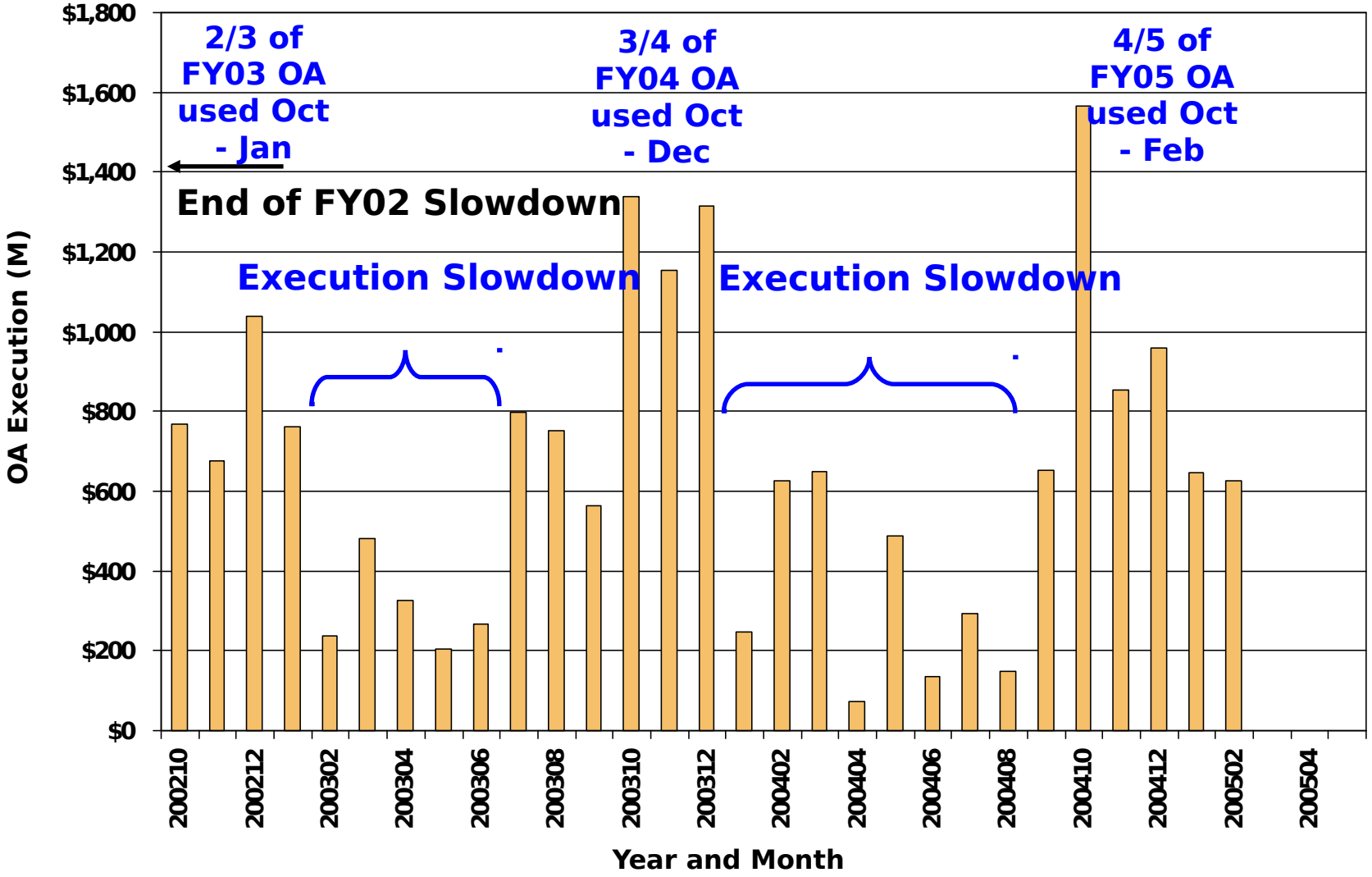
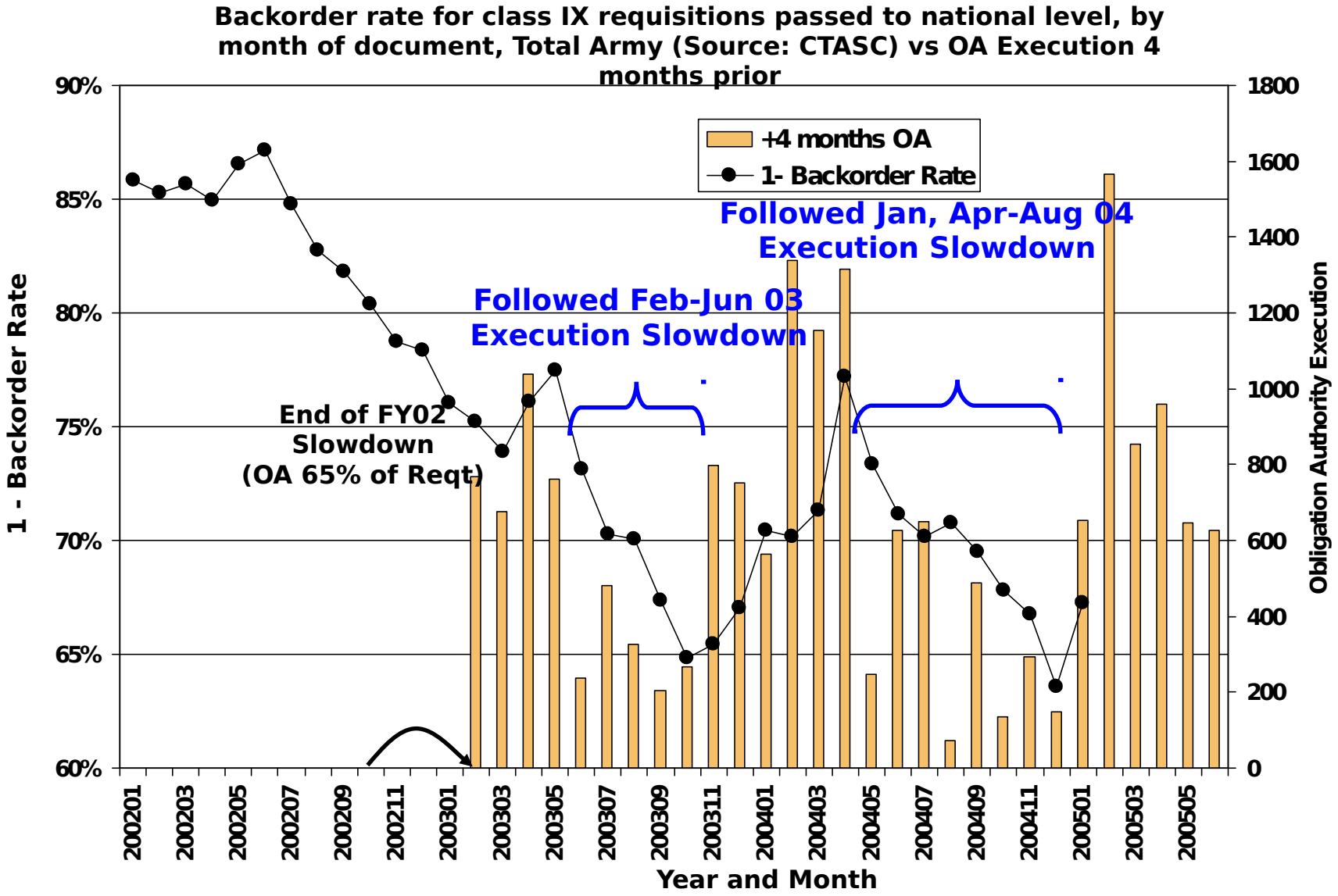
AMC Front-Loaded OA Execution, Mitigating Initial Underfunding, But Had to Limit New Orders from Feb-Jun 03



AMC's Ability to Immediately Fill Requisitions Has Declined for Several Month-Periods Following OA Slowdowns



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Information Flow Does Not Support an Effective Process for Developing Contingency Requirements

- **No formal external guidance to AMC on logistics planning factors**
  - **Info/specified tasks in COCOM OPORD insufficient, no DA annex with factors**
- **No systematic process within AMC to produce or provide guidance on developing CONOPS requirements prior to OIF**
  - **AMC's operations center / current operations to support operations**
  - **AMC G-3 to major subordinate commands (MSC) and then within MSCs**
  - **Standard information flow process now in place, but further improvement needed**
- **AMC lacks good data and information feeds for its standard contingency forecasting process**
  - **Lack of standard processes, good information flow, and effective automation to allow item managers to track/input the number of end items in theater**
    - **Use informal networks (Army G-8, MACOMs, PMs, …), PowerPoint briefings with high-level deployment rotations, merging of Army Flow Model data and property book data (but UICs at different levels), etc.**
  - **Prior to OIF, lacked contingency / SWA minor customer area demand data**
  - **No standard way to link**

In spite of weekly VTCs with SWA, needed PCF data was not available for item managers

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Current Year of Execution OA Change Processes Are Improved But Lengthy and Workload Intensive

- **It took 103 days in FY05 for the MSCs and AMC G-3 to develop a new estimate of requirement based upon current information**
- **Data cleanup conducted**
- **Extensive justification (manual process) has to be built for external organizations to explain why the forecast has changed**
- **But much better process (systematic) than existed pre-OIF**
  - **Provides better information and justification that should enhance OA approval**

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Requirements "Validation" and OA Release Processes Took 7 – 9 Months (3-5 Months After LD)

- **AMC's requirements lacked buy in from other organizations**
  - **Reason for '03 baseline UFR not clear at the time and close timing of UFR and OIF requests led to association of baseline increase with OIF**
    - **Between FY03 AWCF SMA budget development and start of execution, buy and repair requirements changed substantially**
    - **Increase approved and OA released Dec 02**
  - **AMC did not receive explicit requirements guidance from HQDA**
  - **Lack of clarity on how AMC developed OIF requirements**

- **Expectations of short, moderately intense fight followed by redeployment**
  - **Not clear that expectations were consistent with OPORD (basis of AMC reqts)**
    - **Even with low expectations, delta should clearly have not been zero**
  - **SASO/counterinsurgency more intense and prolonged than OPORD**

- **Emphasis on financial risk avoidance**
  - **Financial risk closely managed (cash flow and unit cost goal—UCG)**
  - **Operational risk poorly understood (and not estimated at all)**

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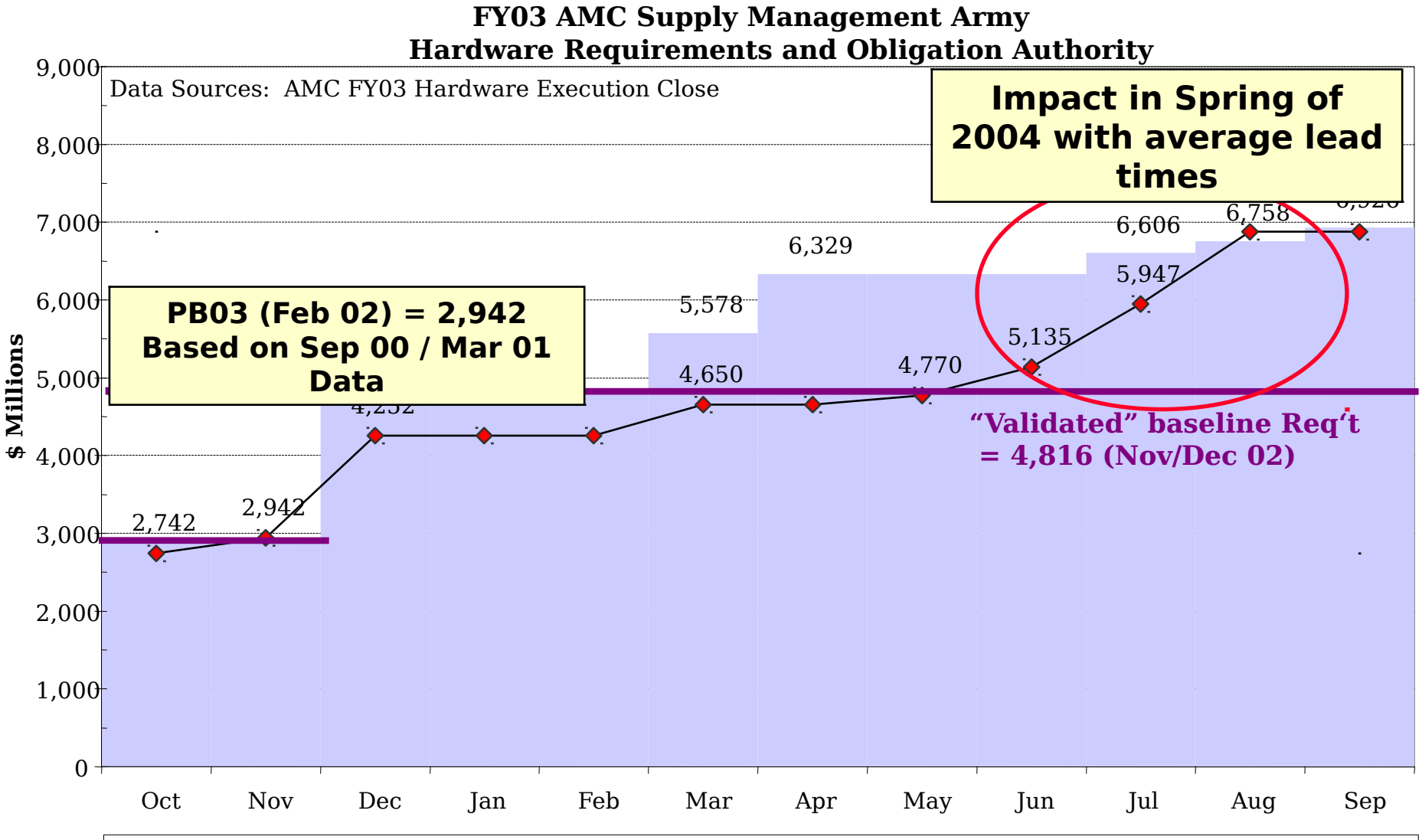
OA for a Production Surge Was Not Provided Until the Summer of 2003



Using Current-Year Sales Backed OA to Support Inventory Growth Is Unworkable for Contingencies

- **When demands rise and stay high, contracts must often be let that exceed current year sales—**
  - **Higher level of replenishments needed to replace higher consumption**
  - **Higher inventory levels needed to meet supply availability goal**
  - **Orders are being placed for needed delivery a lead time away—often next FY**
  - **Potentially need OA » Sales and UCG » 1**

- **Much of the inventory increase will remain "due in" while demands are high, enabling the use of OA without cash to increase the inventory position**
  - **Order a lead time ahead of need, with higher sales providing more cash by the time of delivery**
  - **Additional cash needed above that provided by sales will be a small fraction of the inventory requirement and position increase**
  - **TOA increase needs to be equivalent to increase in on hand inventory**

- **Current use of UCG prevents increasing inventory with OA in advance of demands**
  - **Typically keeps obligations at about the level of sales**
  - **UCG is not being applied in accordance with generally accepted accounting principles and associated business concepts**

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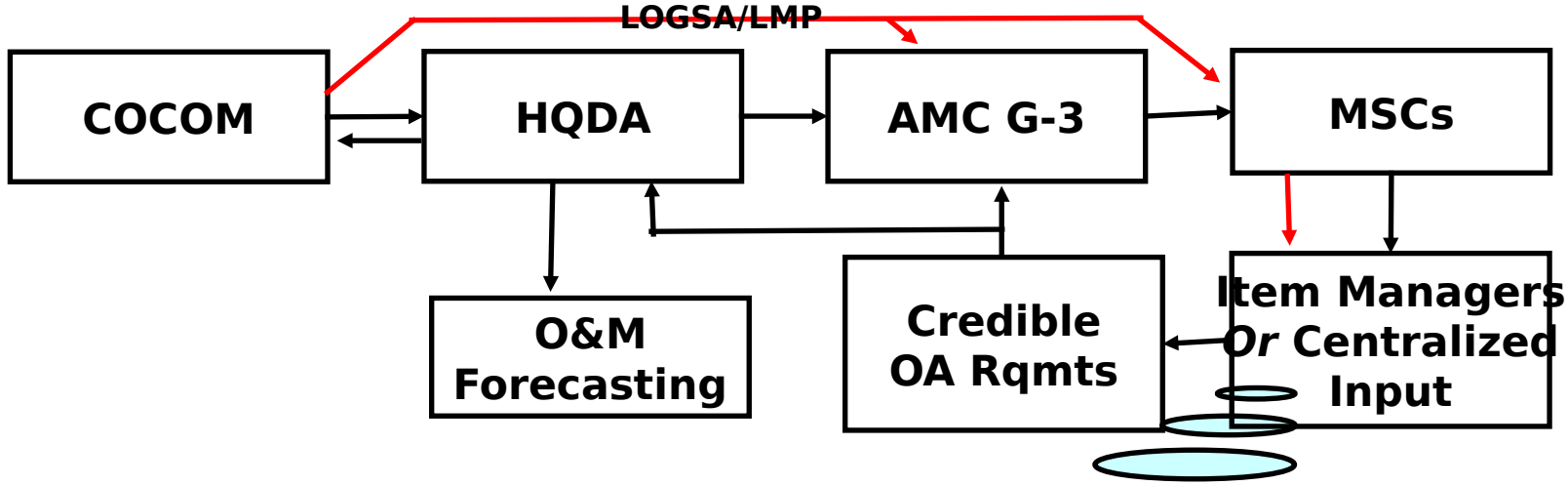
Contingency Programming Process Should Create an Audit Trail from Plans to OA Requirements

- Produce buy in on assumptions based on approved scenarios
- AMC G-3/MSCs/Item managers do inventory and procurement planning, not scenario evaluation
- Eliminate separate bottom-up processes
- Create easy to follow audit trail to answer questions/aid validation

Pre-war → scenarios → guidance → log drivers → requirements → resourc
Conflict → OPORDS



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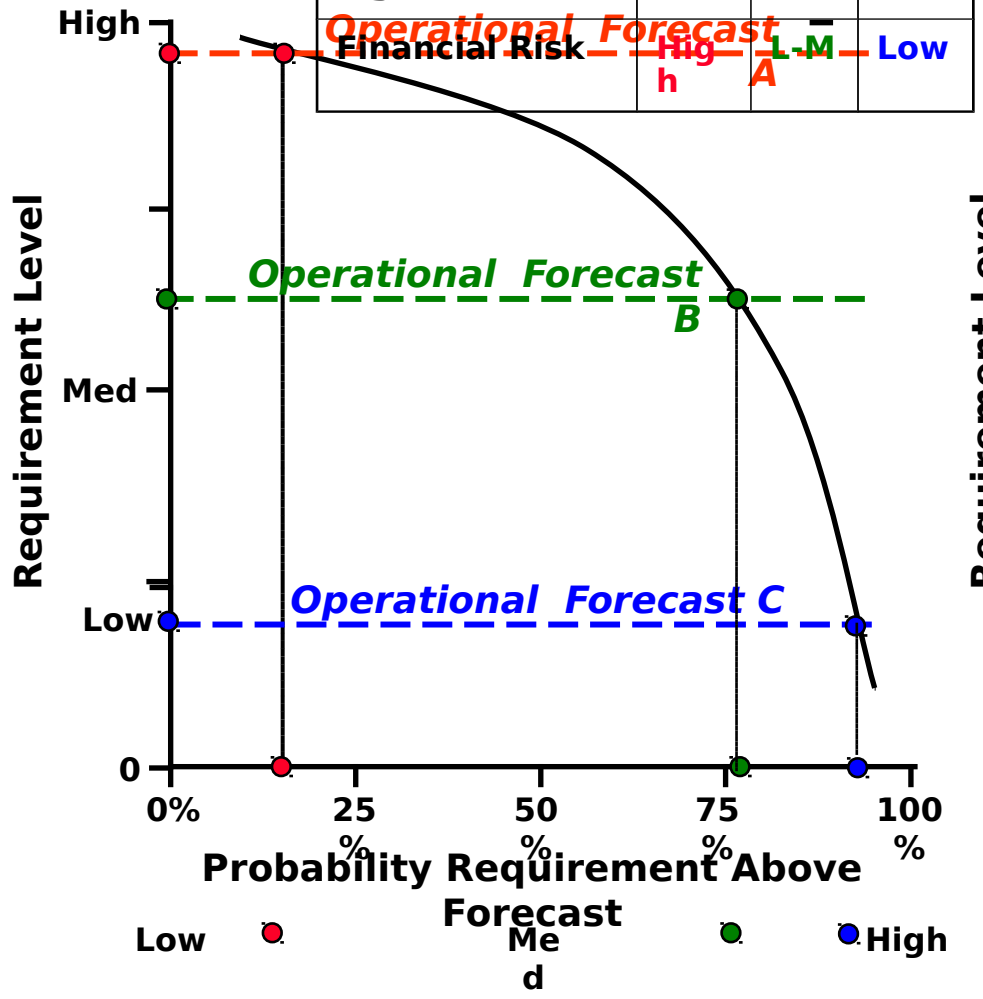
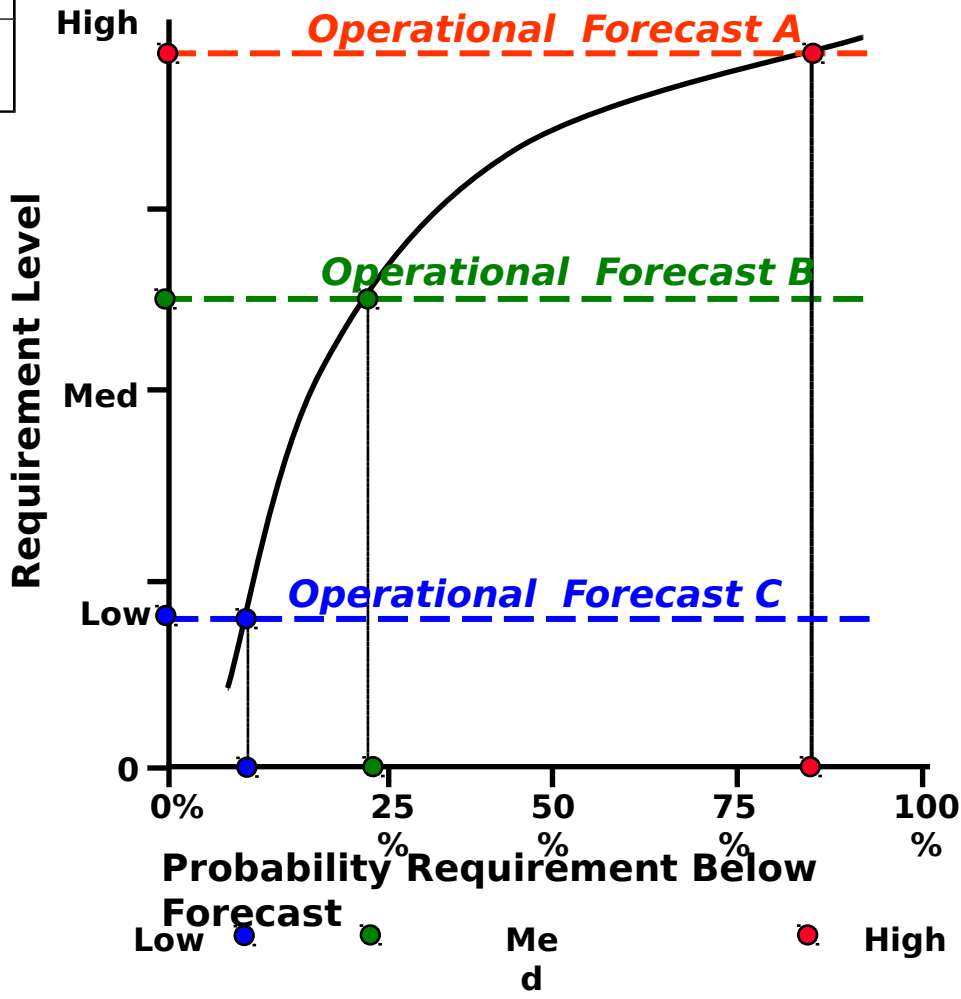
Consideration of a Range of Scenarios Can Support Risk Management, Helping Decision Makers

Scenario Forecast	A	B	C
Operational Risk	Low	M-H	High
Financial Risk	High	L-M	Low



Backorder Rate → Equipment availability

Amount and probability of cash shortfall



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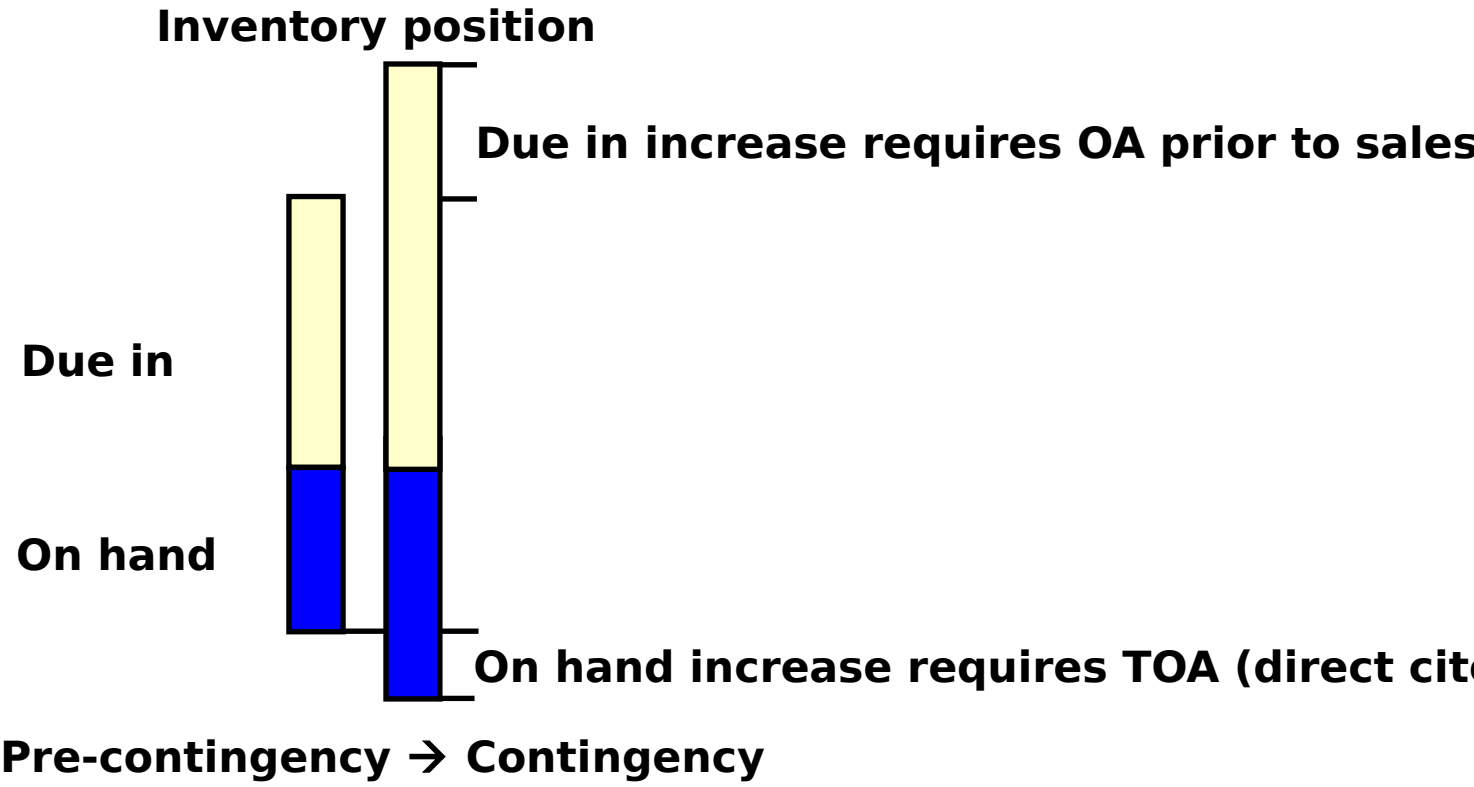
Fund Inventory Augmentation with a Split Between Non-Sales Based OA and TOA

- **OA beyond sales needed up front to handle the increase in the due in level**
- **TOA needed to handle the increase in on hand inventory**


Inventory position
Due in increase requires OA prior to sales
Due in
On hand
On hand increase requires TOA (direct cite
Pre-contingency → Contingency

Improve Contingency Preparation and Dynamic Response to Repair Part Needs Through Improved Planning and Resourcing Processes

- **Improve the speed and effectiveness of the contingency requirements determination process**
  - **Pre-war scenario planning, risk assessment posed by different Repair Parts**
  - **Contingency and Sustainment - Planning guidance and information flow**
  - **Centralized, effective, traceable demand forecasting and buy/repair computations**
  - **Rapid computations and process flow**
- **Improve the speed and effectiveness of the AWCF contingency OA approval process**
  - **Risk management techniques to facilitate decision-making**
  - **Consideration of operational as well as financial risk**
  - **Rapid process flow, pre-war based on approved scenarios**
- **Develop and analyze alternative financial mechanisms for a “continuous” inventory system**
  - **Consideration of multi-year cash flow accounting controls**
  - **Provision of OA a lead time in advance of sales and a smaller amount of TOA to support higher, sustained demands**
- **Continue Lead time reduction, and improve supplier responsiveness and war reserves**
  - **Lead time reduction will reduce financial and operational risk tradeoffs**
  - **War reserve is essential when the strategic situation does not allow early use of commitment to suppliers**

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Backups

Background

- **OIF AWCF Issues***
  - **Requirements Determination**
  - **Funding Repair Parts for Contingencies**
  - **Information Flow**

- **Stewardship**
  - **AMC G3, G8; DA G4, G8 = Rand Study**
  - **VCSA IATF - “Better Leverage AWCF…”**

***Other supply issues included Transportation, and Packaging**

CCSS/LMP Adjust Global Forecasts By Varying the Weight of Regions as End Items Move

Based upon actual demands

Maintained in program data files (PDFs) by major item managers (6 years into future)

Major Customer Area / Minor Area	Average Monthly Demand (Per end item)	Average End Item Quantity	Next Qtr End Item Qty	Program Change Factor (PCF)	Forecast
CONUS	200 (0.7)	300	200	200/300 = 0.67	200 * 0.67 = 134
Pacific	50 (0.7)	75	75	75/75 = 1	50 * 1 = 50
Europe	100 (0.9)	110	210		
Germany	50 (0.7)	75	75	75/75 = 1	50 * 1 = 50
Balkans	10 (0.7)	15	15	15/15 = 1	10 * 1 = 10
Italy	0 (-)	0	0		
SWA	40 (2.0)	20	120	120/20 = 6	40 * 6 = 240

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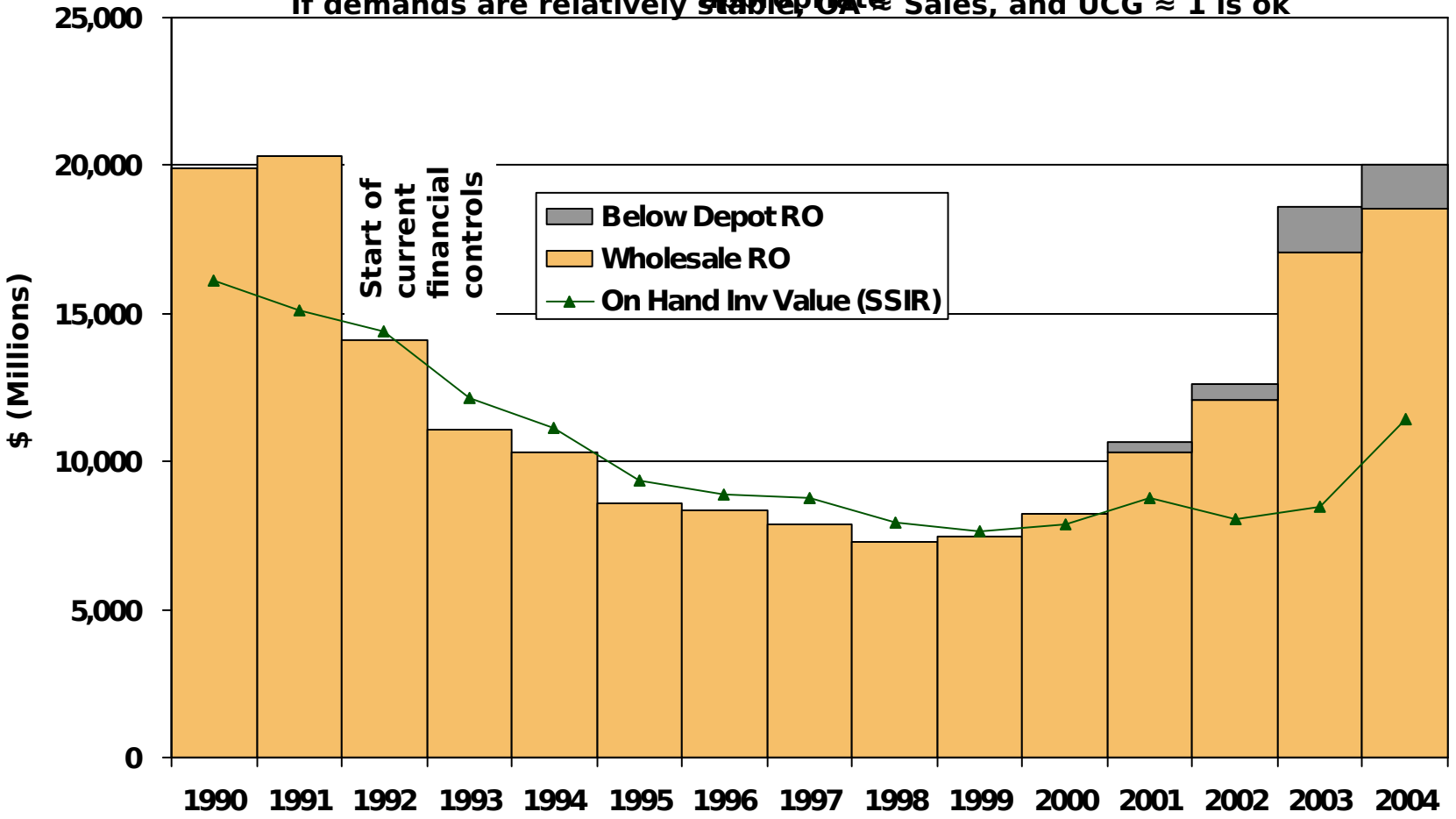
AWCF Financial Controls May Have Been More Effective When Demands Were Decreasing or Flat

Controls: UCG and current year sales → multiple of current year sales

If demands are decreasing, OA < Sales or even OA « Sales, and UCG < 1 is appropriate

If demands are relatively stable, OA ≈ Sales, and UCG ≈ 1 is ok



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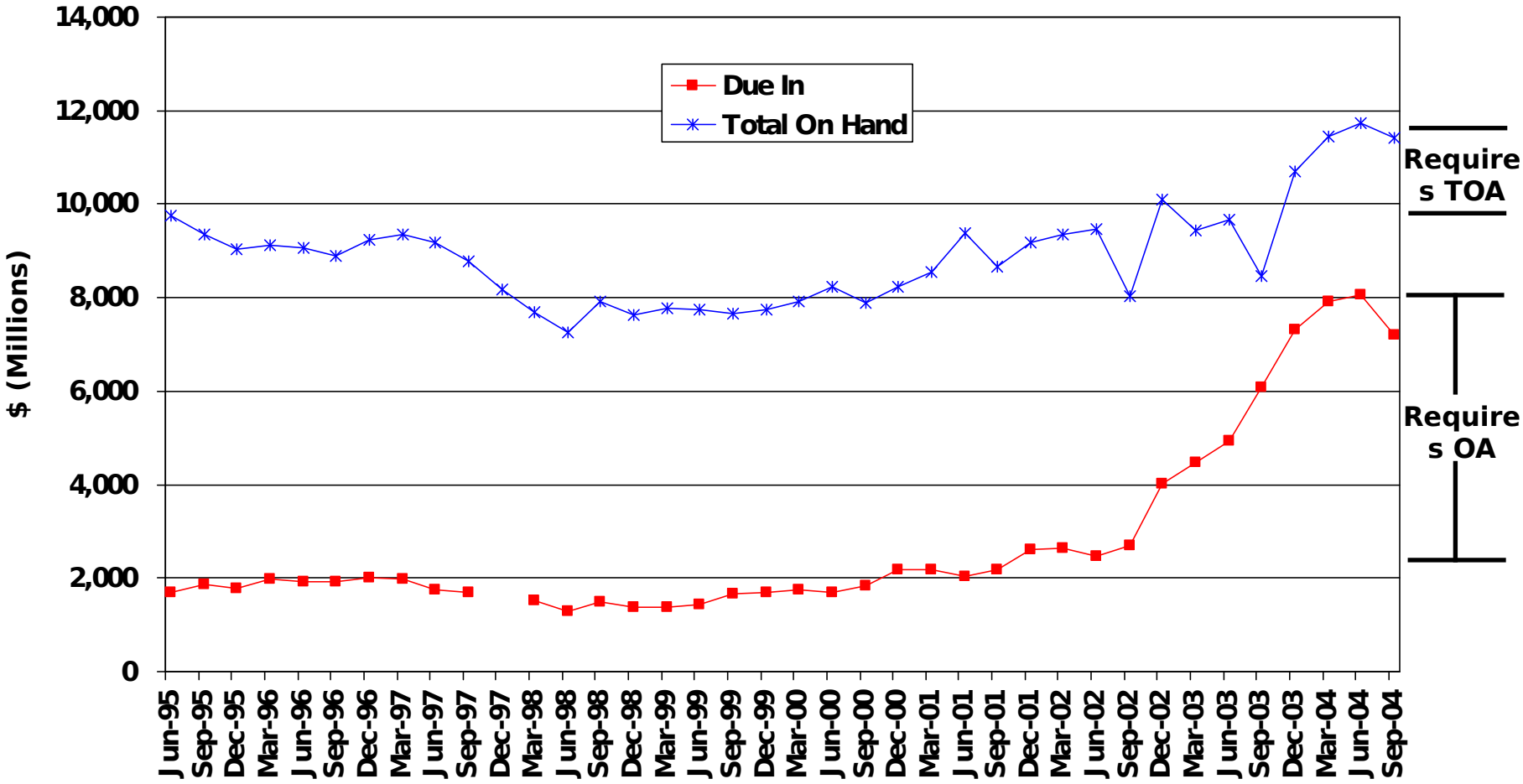
Most of the Increase in the AMC Inventory Position Is Due In (and Will Remain So Until Demands Drop)



Source: Stratification reports

Stratify Requirements by Financial and Operational Risk Posed by Different Repair Parts

- **Readiness drivers with long lead times: High Operational Risk (war reserve priority)**
- **Short lead times & non-critical: Low Operational Risk**
- **Wear-driven demand & low cost: Low Financial Risk**
- **High demand variability/low demand & high cost: High Financial Risk**

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Problems in OIF Suggest Potential Alternative, for Demand Forecasting

- **Need ability to rapidly generate and update contingency forecasts**
  - **Forecasts can be generated off line and entered as programmed demands**
    - **Can be computed using same process used for war reserve reqts**
    - **Transition to actual demands as soon as possible**
  - **Improving input data is key to war reserve and offline contingency forecasts**
    - **Full funding will never be immediately available, so need resource allocation tools**

- **Existing CCSS/LMP tools can be used to reduce requirements as contingency demands decline, with a more effective process for updating end item quantity information**
  - **Consider centralized team to track deployment plans by UIC**
  - **Automation might use UICs with property books to determine gains and losses**

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Consider Mechanisms to "Break" FY Inventory Investment and Sales Link, While Retaining Financial Control

- **FY "boundaries" tied to current year sales conflict with how an inventory system operates—but matters much less in a stable demand environment**
  - **Current inventory is for future orders, often beyond a FY**
  - **Obligations often extend beyond a fiscal year boundary**

- **One possibility would be a multi-year cash flow model**
  - **Assess timing of expected inflows and outflows**
  - ***Time phased* cash resources in a given FY must support payments for prior year obligations and current year obligations**
    - **Cash resources: sales projections and TOA**
    - **Cash required = expected disbursements for orders placed in prior years + expected disbursements for current year order deliveries**
    - **Continuous tracking is required—not just annual balance**
    - **Treat cash as inventory**
      - Cash corpus is akin to safety stock
  - **Need to assess quality of data to support this type of control mechanism**

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AMC Ad Hoc Methods to Develop Contingency Requirements Hampered Acceptance and Were Conservative

- **AMC developed top-line budget estimates using OSRAP (AMSAA simulation model)**
  - **AMC developed logistics driver assumptions from best available information**
    - **Support operations planner derived assumptions from OPORD in Oct 02**
      - **Extracted units from OPORD and "translated" to mileage**
      - **Assumptions were good, but does this lead to lack of buy in?**
  - **Overall estimate was about 20% too low ($1 B), likely resulting from unanticipated SASO intensity**
    - **Very significant item level errors (high and low) that appear to be input data driven**

	Date	**Estimate**		**Assumptions**
•	Nov 02	War:	$ 418M	4 Divisions, 6-month Scenario
•	Mar 03	Prep:	$ 762M	6 Divisions, 48-month Scenario
		War:	$ 1,198M	DA Reset Team
		Reset:	$ 3,221M	

Requirements reflect FY03 only
Source: AMC G3 Support Ops Budget Audit Trail

- **Actual item level requirements developed through a separate, bottoms-up process**
  - **Lack of standard guidance and information**
  - **Commodity business units / item managers developed estimates with different methodologies**
    - **Generally conservative**
  - **Standard contingency forecasting process (PDFs and PCFs) not used**

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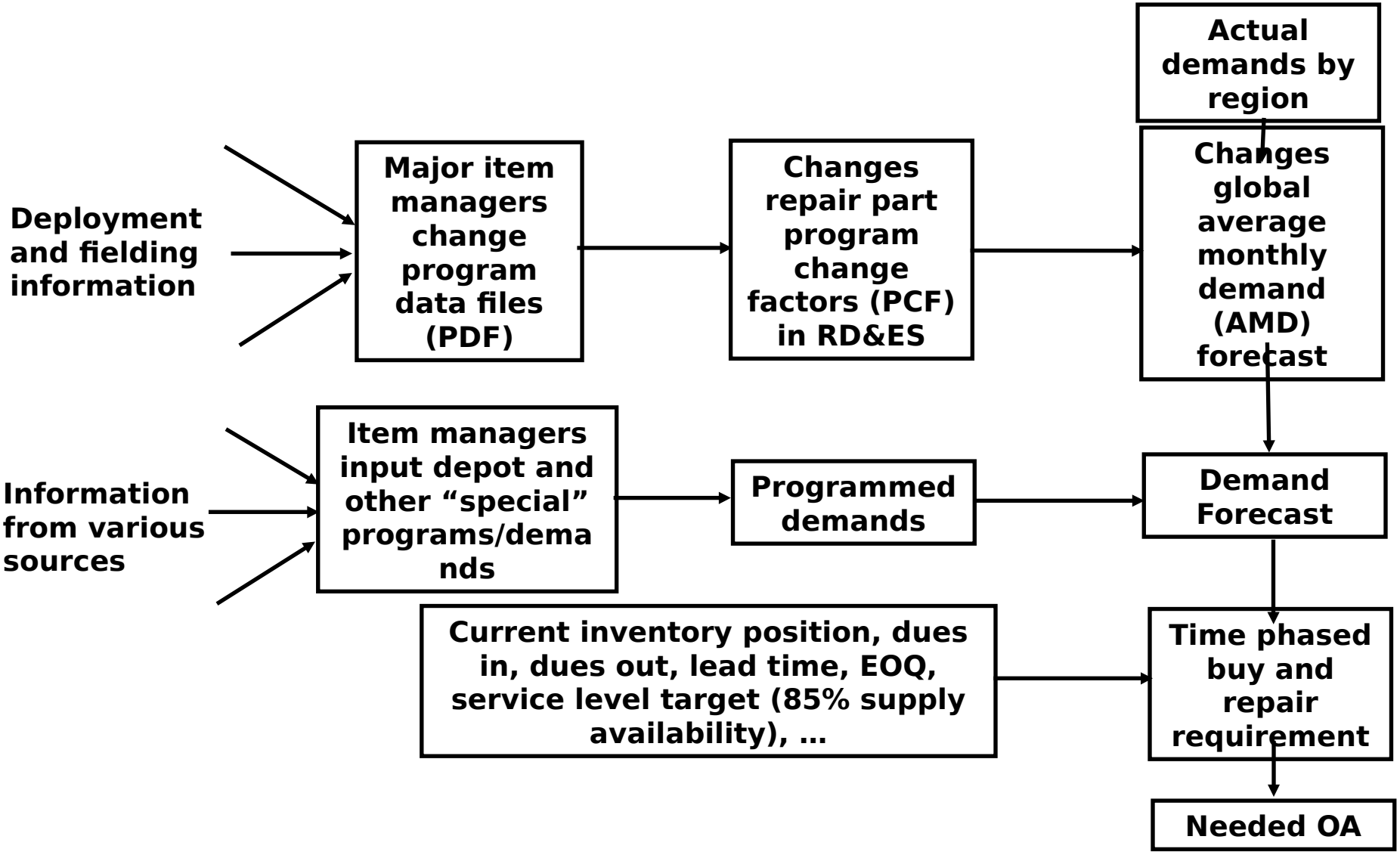
Summary: OIF AWCF Planning and Execution

- **Backorder rate for Army managed repair parts increased dramatically**
- **Recent Army managed repair part backorder rate generally correlated with readiness**
- **War reserve stocks of repair parts inadequate**
- **"OIF OA" not provided until June through August 2003**
- **Early fiscal year high rate of execution by AMC appears to have limited "stacked" orders waiting for OA through January 2003**
  - **Used most of "baseline"/peacetime OA budget in first four months**
- **AMC execution was limited from February 03 through June 2003, "stacking PRONs." Similar situation occurred in FY04.**
- **AMC requirements have been more reactive (based upon actual contingency demands) than proactive (forecast of need before contingency demands occur or as they change as operations change), causing requirements increases to lag needs**

The Repair Parts Requirements Determination Process


Actual demands by region
Deployment and fielding information
Major item managers change program data files (PDF)
Changes repair part program change factors (PCF) in RD&ES
Changes global average monthly demand (AMD) forecast
Information from various sources
Item managers input depot and other "special" programs/demands
Programmed demands
Demand Forecast
Current inventory position, dues in, dues out, lead time, EOQ, service level target (85% supply availability), …
Time phased buy and repair requirement
Needed OA

Consideration of a Range of Scenarios Can Support Risk Management, Helping Decision Makers

	$1.5 B	$2.5 B	$3.5 B
20 BCTs + SPT 1 Month High 5 Months Med	Cash ok 85% SA 90% Readiness	$1B short 90% SA 94% Readiness	$2B short 93% SA 94% Readiness
24 BCTs + SPT 1 Month High 11 Months Med	$1B cash surplus 80% SA 86% Readiness	Cash ok 85% SA 90% Readiness	$1B Short 90% SA 94% Readiness
28 BCTs + SPT 1 Month High 11 Months High	$2B cash surplus 75% SA 80% Readiness	$1B cash surplus 80% SA 86% Readiness	Cash ok 85% SA 90% Readiness

Need two simulations: Cash flow simulation
Supply availability and readiness simulation

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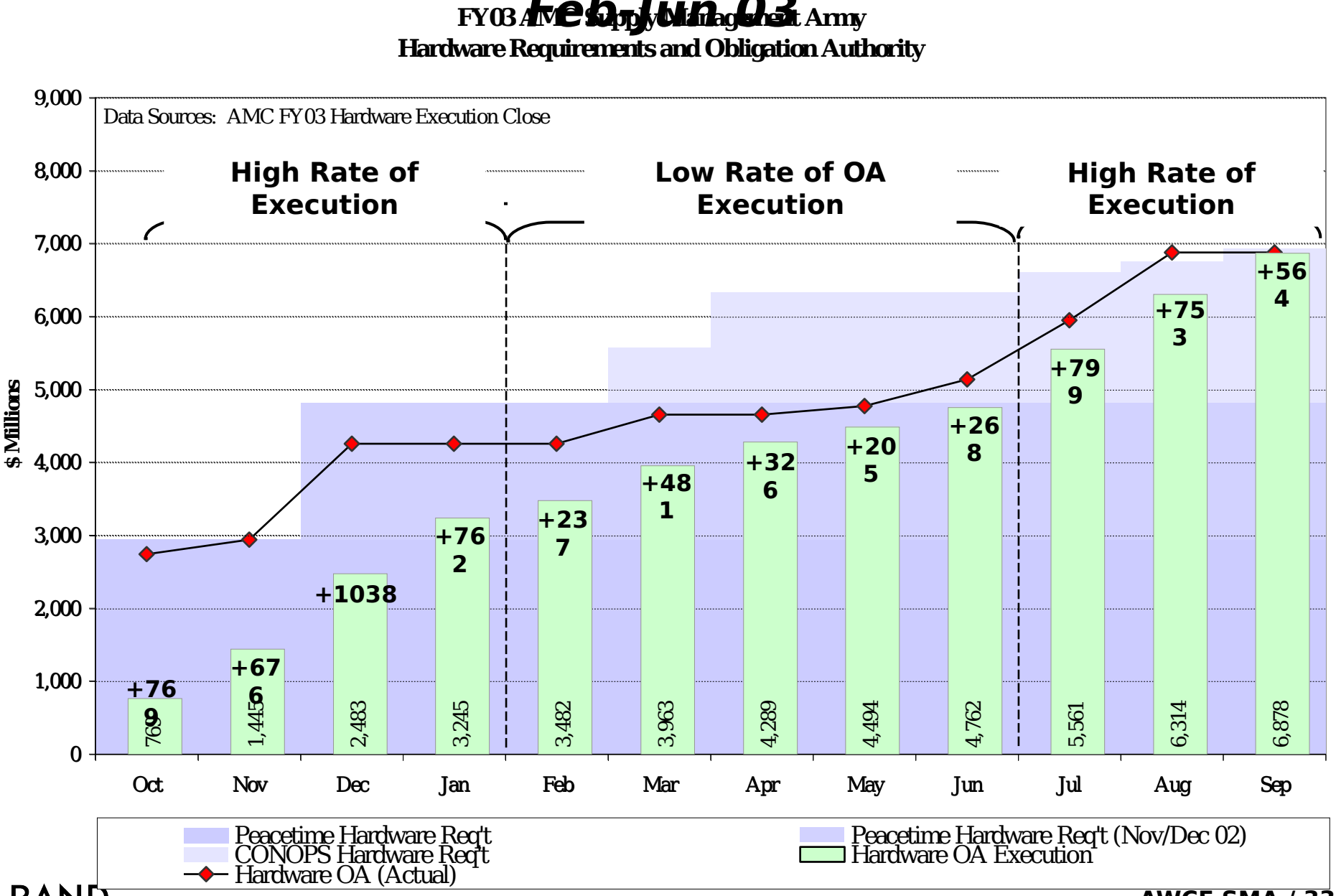
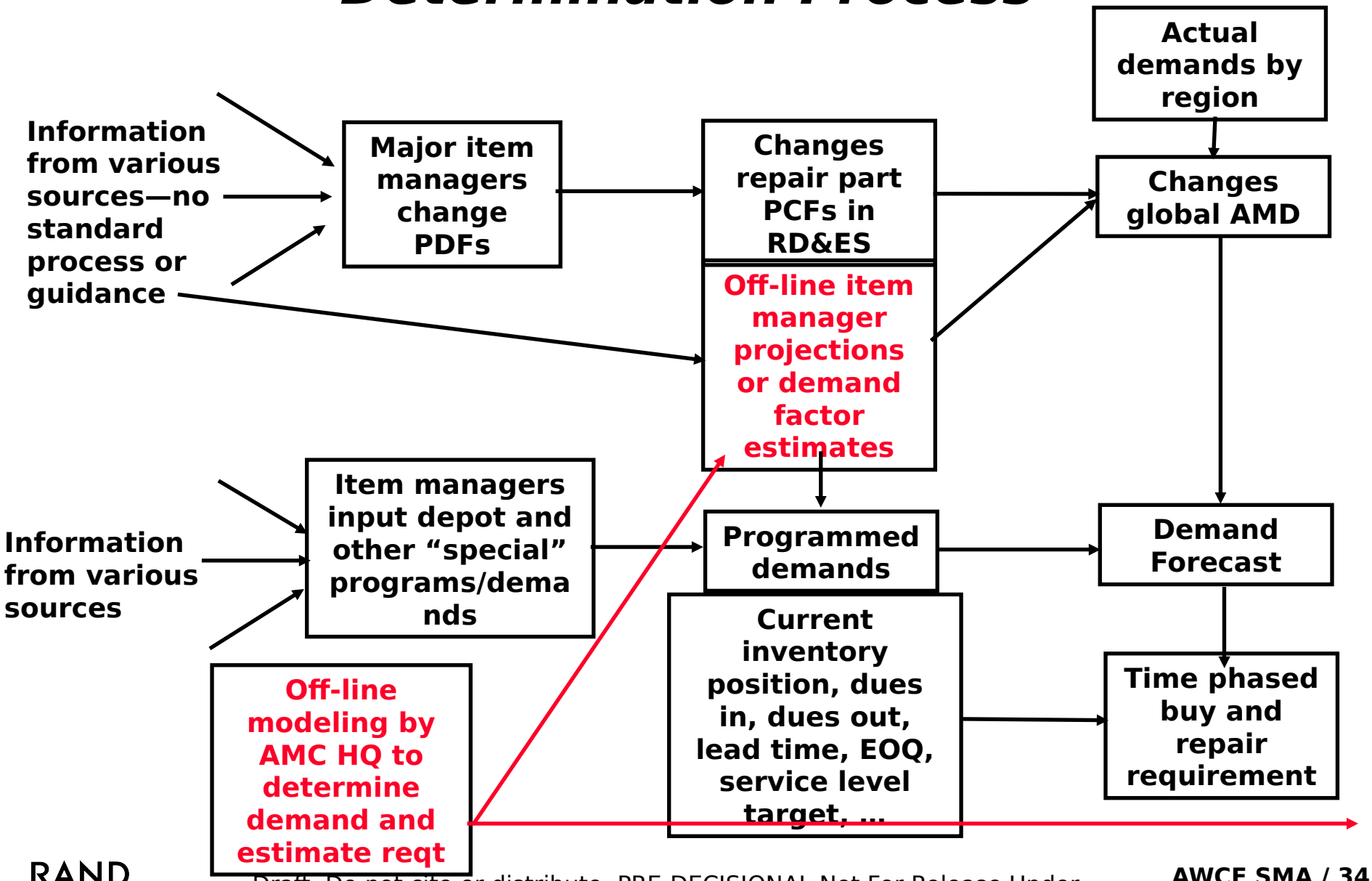


AMC Personnel Adapted the Requirements Determination Process


Actual demands by region
Information from various sources—no standard process or guidance
Major item managers change PDFs
Changes repair part PCFs in RD&ES
Changes global AMD
Off-line item manager projections or demand factor estimates
Item managers input depot and other "special" programs/demands
Information from various sources
Programmed demands
Demand Forecast
Current inventory position, dues in, dues out, lead time, EOQ, service level target, …
Time phased buy and repair requirement
Off-line modeling by AMC HQ to determine demand and estimate reqt

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A Variety of Methods Were Used to Increase Requirements Prior to OIF

- **TACOM**
  - **Dec 02: Lowered EOQ min/max parameters, increasing safety levels and lowering operating level→smaller, more frequent buys**
    - **Also helped conserve "scarce" dollars—don't over commit to one NIIN**
  - **Sep 02-Mar 03: Commodity areas used various methods to increase reqts**
    - **TACOM Warren Powertrain teams:**
      - **M1 and M2 teams multiplied AMDs by 1.2**
      - **HMMWV and M900 teams used programmed demands**
      - **HEMTT, AVLB, M88, M109, and carriers did not adjust adjust demands**
  - **Other strategies: buy more than study rec., preempt ROP, "highball" ALT/PLT**
  - **Changed demand base from 24 months to 12 months for some items**

- **CECOM**
  - **Manual off-line methods using historical data, plans, & OSRAP run**
  - **Increased safety levels**
  - **Changed demand base to 6 months for some items**

- **Program data file / Program change factor use**
  - **SWA not a minor customer area until June 03**
    - **54 of 1726 NIIN sample with PCF > 1 in 4Q03**

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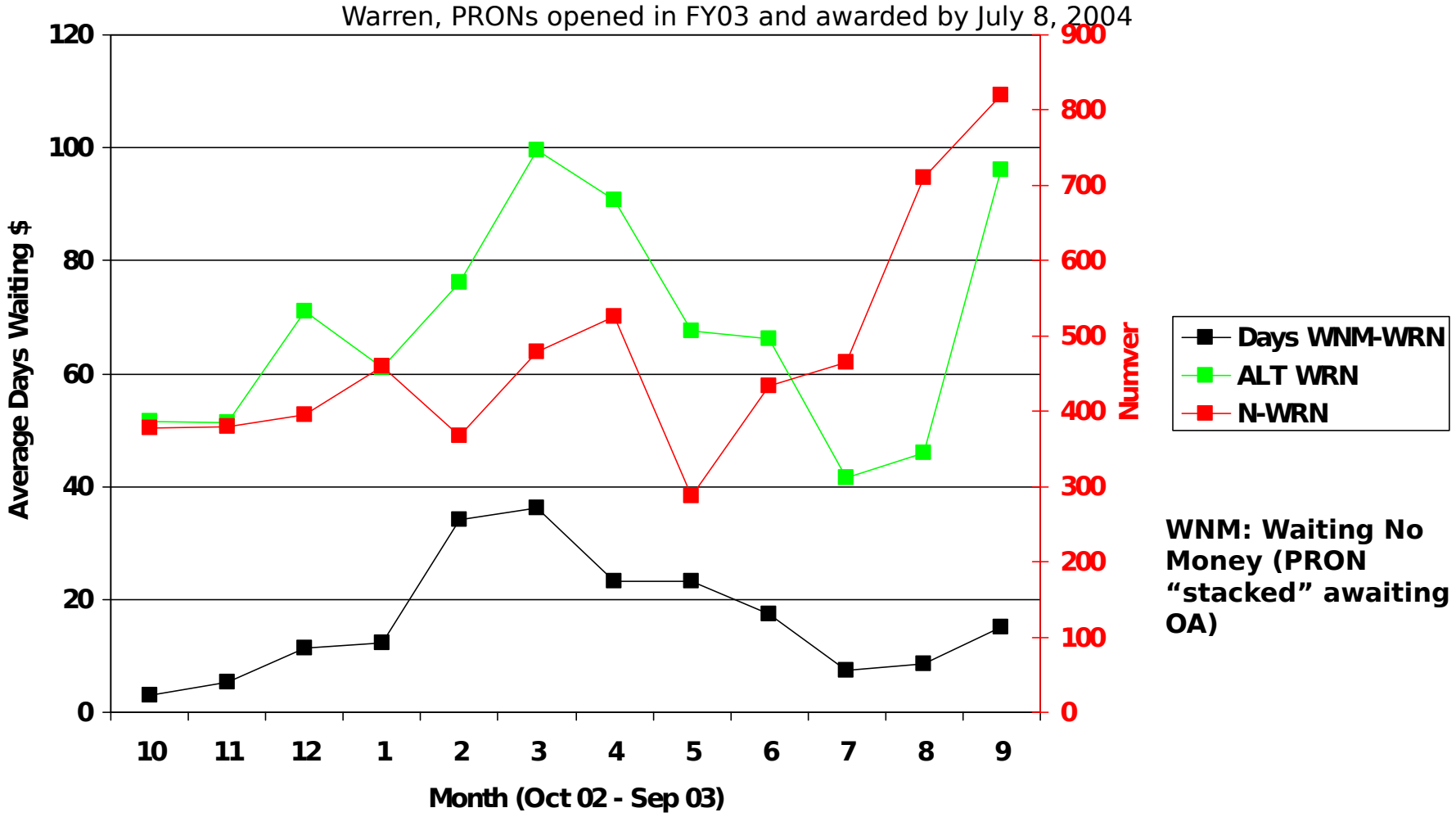
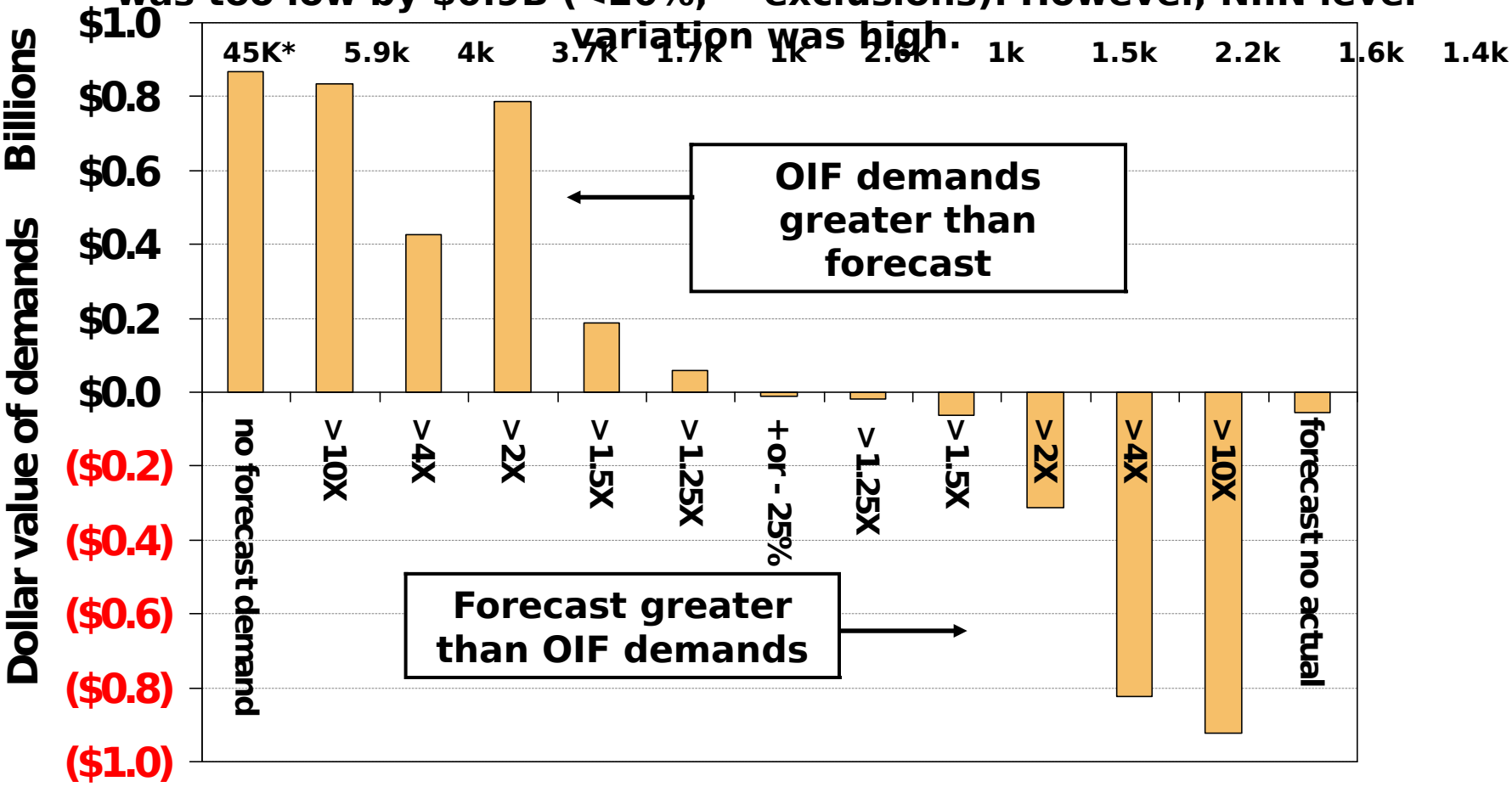
As Commitment Execution Slowed, TACOM Warren Financial Wait Time Increased, Increasing ALT. Lack of Stacked PRONs and Limited PRON Increase Until August Raise Questions About Sufficiency/Timing of Inventory Level Adjustments



Forecast Generated Just Prior in March 03 Suffered Same Input Data Problems as War Reserve

Forecast of total value of demands for first 12 months of OIF was too low by $0.9B (<20%, ~ exclusions). However, NIIN level variation was high.



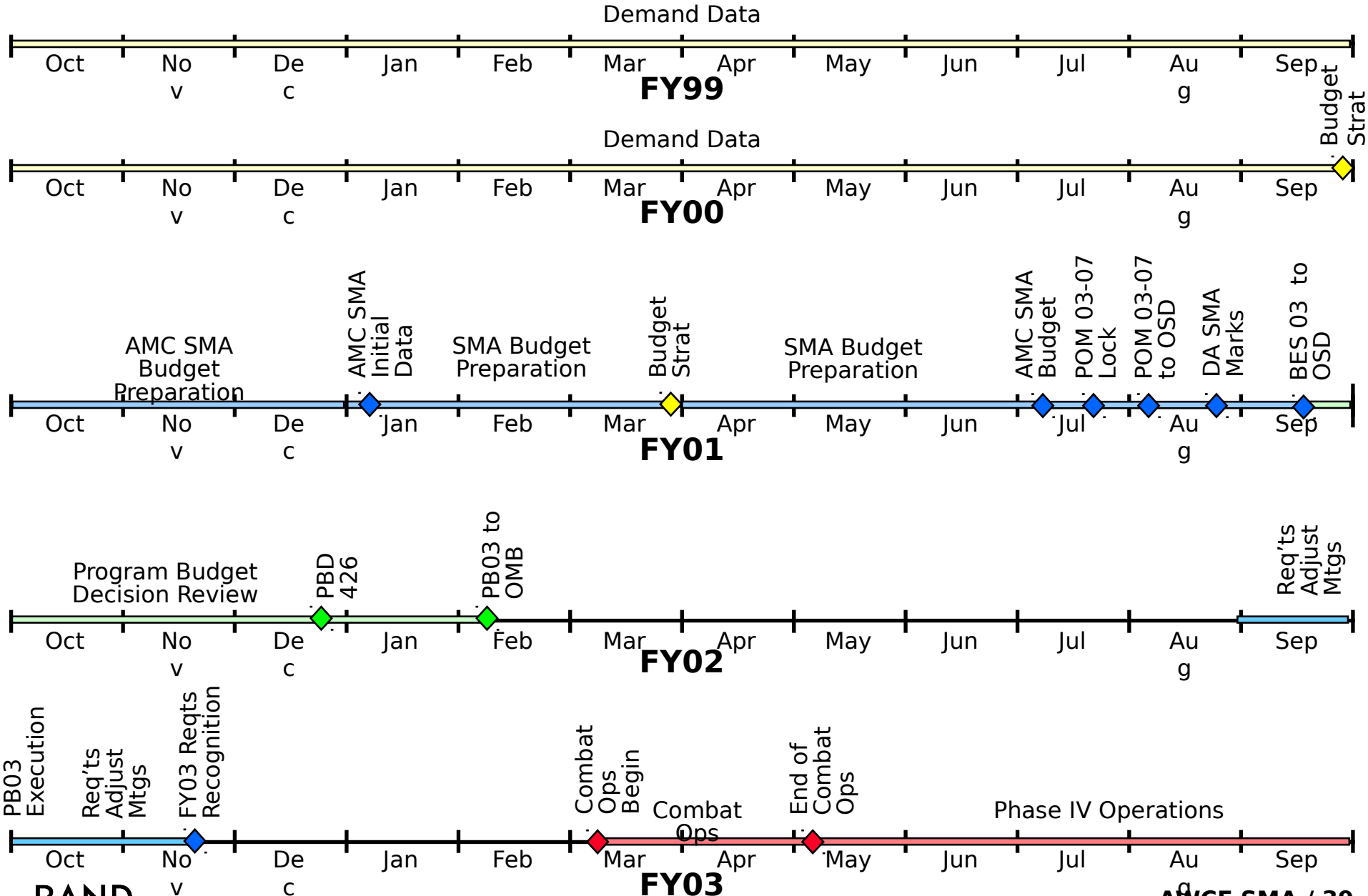
Limited to Class IX EC = "C" items

*** Most of these NIINs were excluded (e.g., FSC = 53XX)**

Pre-Contingency Execution and During-Execution Problems Are Fundamentally Different

	Pre-contingency	During contingency (after first few months)
Deployment phasing	**Some to high uncertainty**	**Deployment known**
Duration / Redeployment	**High uncertainty**	**Better information about likely continuation or planned redeployment**
OPTEMPO (MCO and SASO)	**High uncertainty**	**Empirical data available. Some uncertainty in future OPTEMPO remains**
Projection from OPTEMPO to demands	**OPTEMPO to demand relationships not clear. May have to make assumptions (e.g., linear)**	**Empirical basis for AO/minor customer region (at contingency OPTEMPO to date)**
Use of PCFs with AMDs	**Could be ineffective (lacking a wartime per unit AMD in RD&ES)**	**Likely to be effective (in somewhat stable environment) —empirically**

President's Budget 03 Timeline



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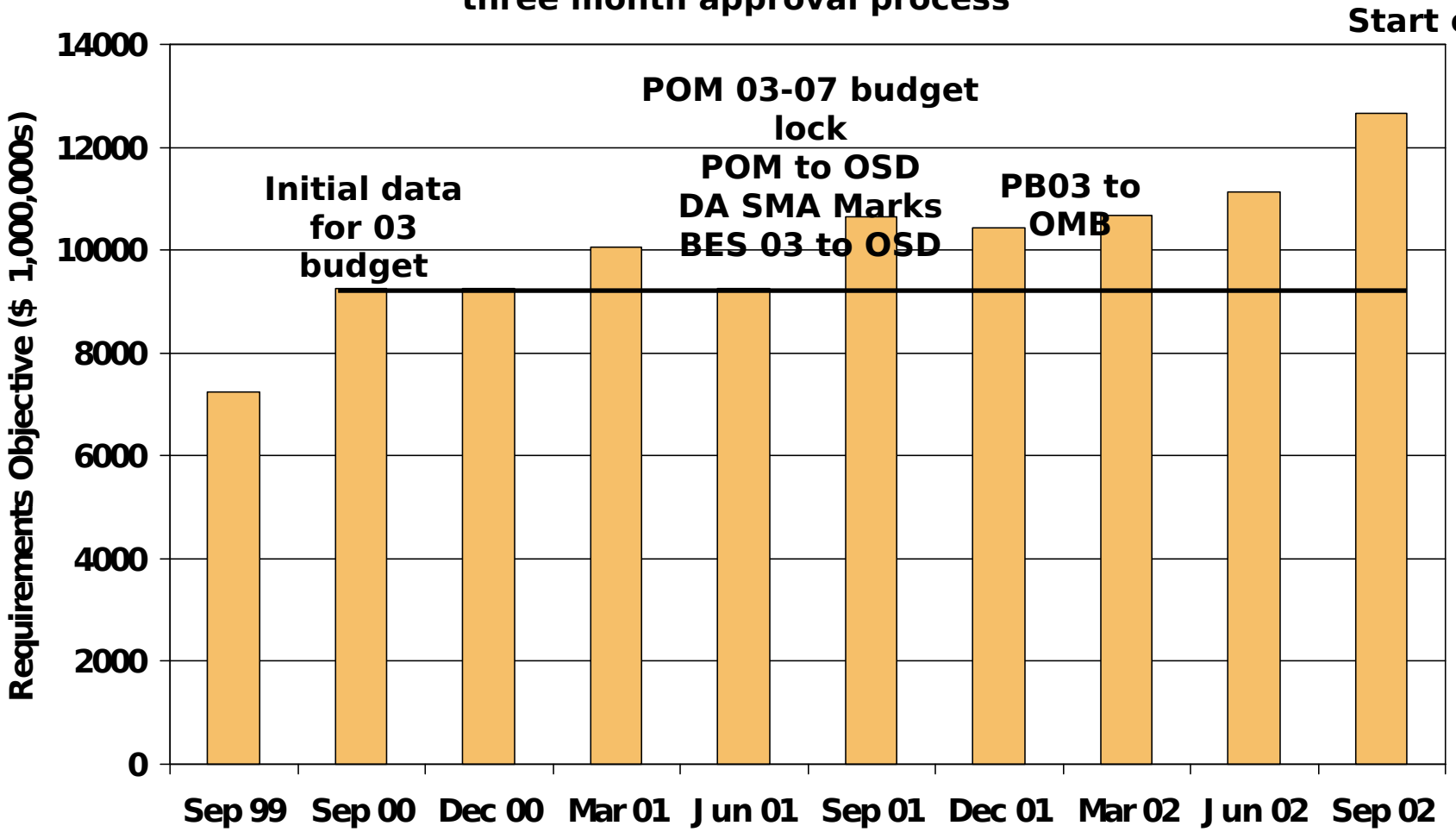
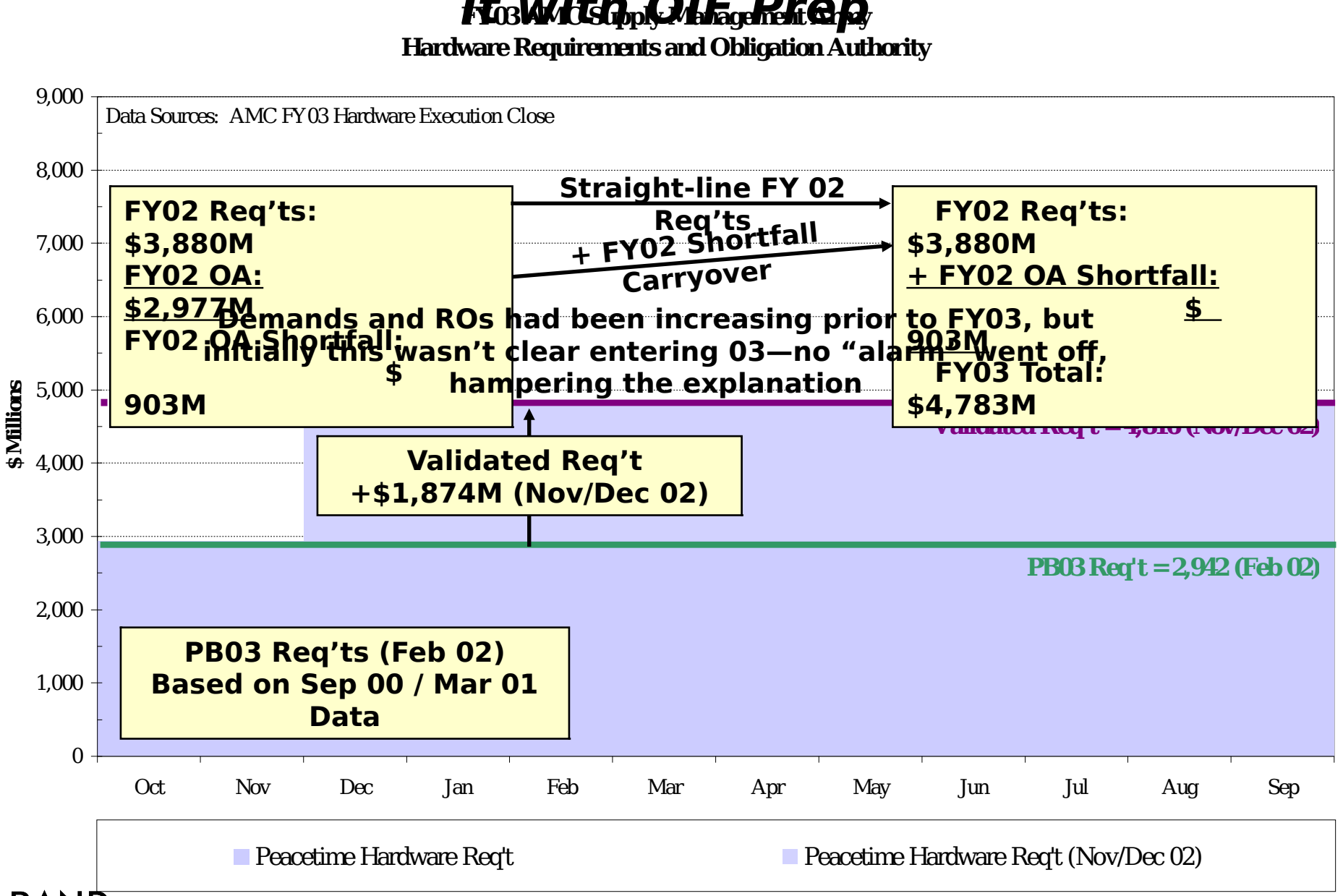
Between the FY03 AWCF SMA Budget Development and the Start of Execution, Requirements Increased

Initially this explanation for the FY03 beginning of year OER wasn't made—no "alarm" went off, hampering the explanation and resulting in a two to three month approval process



Source: AWCF-SMA Performance, 5/17/2004, AMC G-3

The FY03 Baseline Increase Appears Justified Based Upon Demands & an 02 UFR, But Some Associated It with OIF Prep



Unit Cost Is a Measure of How Productively Resources Are Being Employed

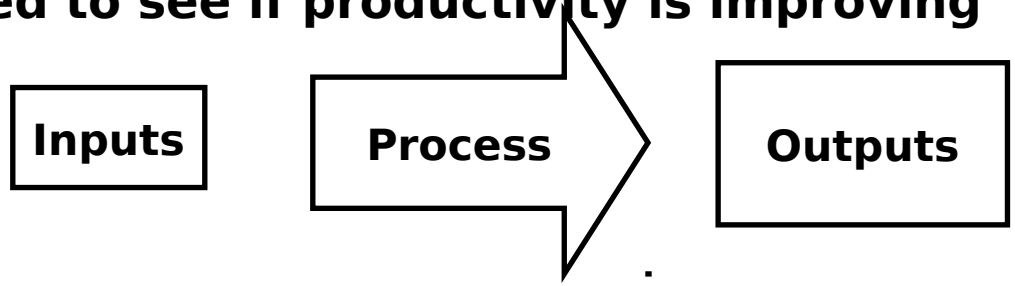
- **"Unit cost is simply the "average total cost" of producing one unit of output. A unit cost is calculated by dividing the total cost of production by the total number of units of output produced … The result is the cost per unit of that output, or unit cost."**
  - ***DoD Unit Cost Handbook***

$$\text{Unit Cost} = \frac{\text{Total Cost}}{\text{Total Output}}$$

Figure 1

- **Can be used to see if the value of outputs are greater than or equal to the value of the inputs—is the process producing value (unit cost < 1)?**

- **Can be used to see if productivity is improving**



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Unit Cost Concept Is Being Applied Differently than Generally Accepted Accounting Principles Might Suggest

$$\text{Unit Cost} = \frac{\text{Total Cost}}{\text{Total Output}}$$

Figure 1

- **Key principle: match expenses to the revenue they provide**
  - **Buying inventory is not an expense**
  - **It is not a cost of production associated with a specific, known output at the time of purchase**

- **"Costs" or expenses in accounting terms are the costs of producing a unit of output**
  - **The associated expense**
    - **= cost of good sold (COGS) and the operational and other expenses associated with inventory management**
    - **= COGS + LOGOPS (including inventory write-offs)**
  - **AWCF SMA output or value**
    - **= item and the service provided by holding inventory**
    - **= replacement cost + readiness value of getting the item when ordered rather than waiting a lead time**

- **Is the value created by holding inventory (e.g., not waiting 9 months upon request) worth the full cost of maintaining inventory (surcharge/LOGOPS)**
  - **If (replacement cost + value of not waiting) > (COGS + surcharge allocation), then AMC is producing value for the Army (the ratio of this should be > 1)**

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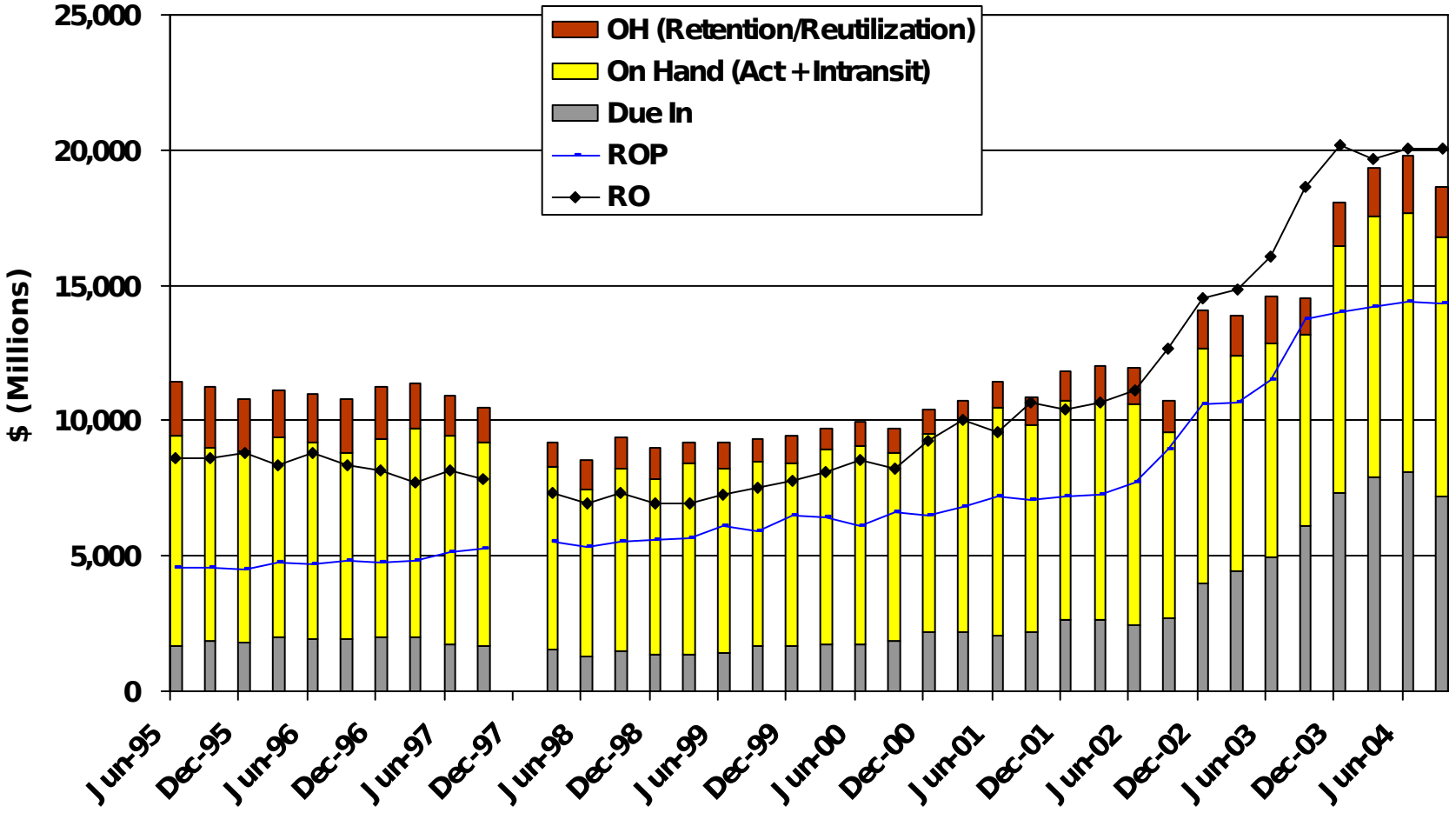
Growth (a War for the Army) Requires Increased Working Capital, Which Requires Cash Up Front

- **An organization with slow moving inventory requires a lot of working capital**

- **Growing companies (holding productivity constant) require increasing working capital for inventory investment as well as for other investment capital**

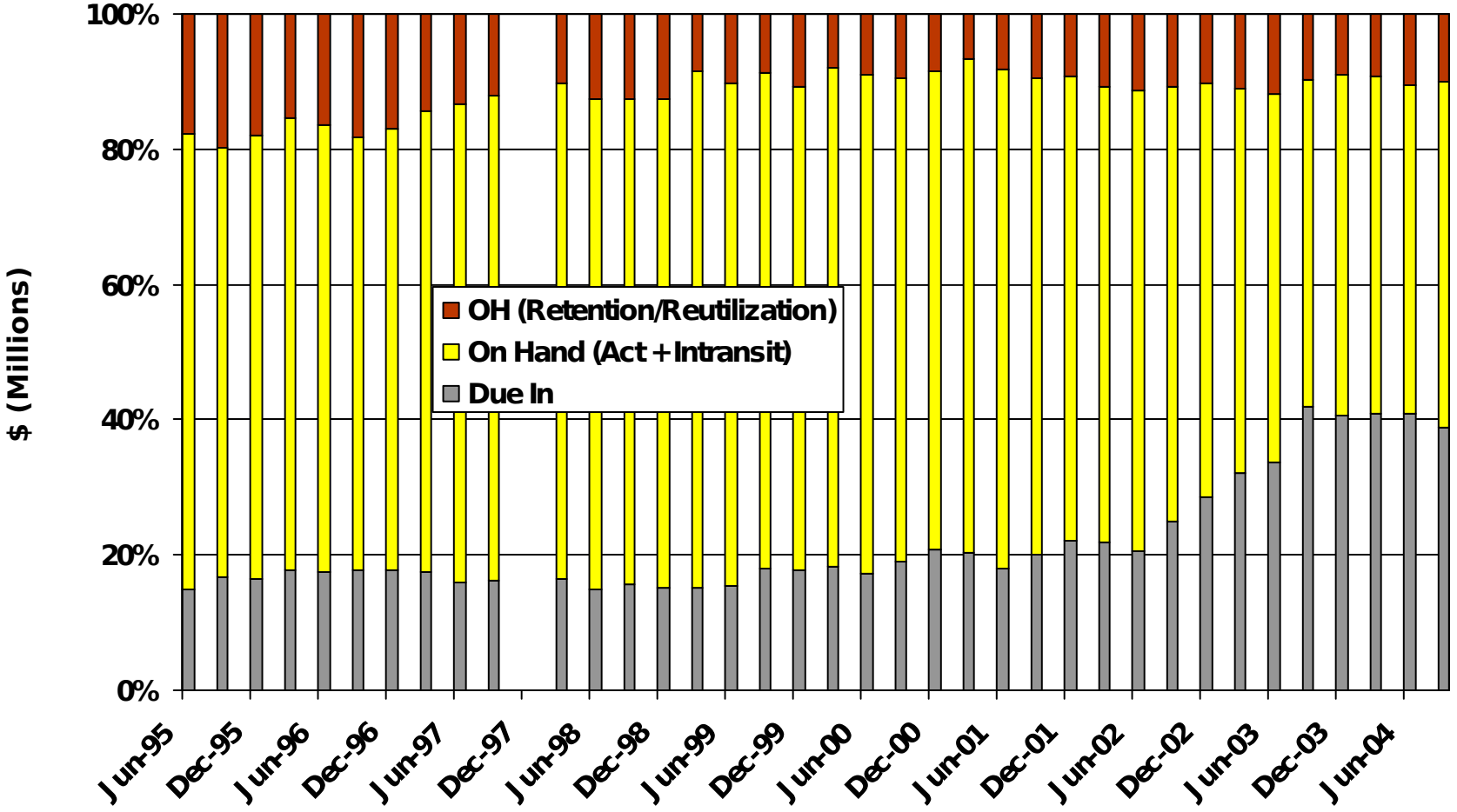
- **Firms acquire capital (i.e., cash) by raising equity (e.g., sale of stock) or securing debt**
  - **Firms spend ahead of sales but have enough margin to cover the cost of the equity or debt**
    - **Currently, Army can do neither**
  - **In some cases, Army needs a cash allocation to increase inventory**
  - **When the system has decreasing inventory requirements, excess cash will be generated that can be "paid back"**
    - **Sales supported with inventory that does not have to be fully replenished**

As Appropriate, the On Hand + Due In Is About Halfway Between the ROP and the RO



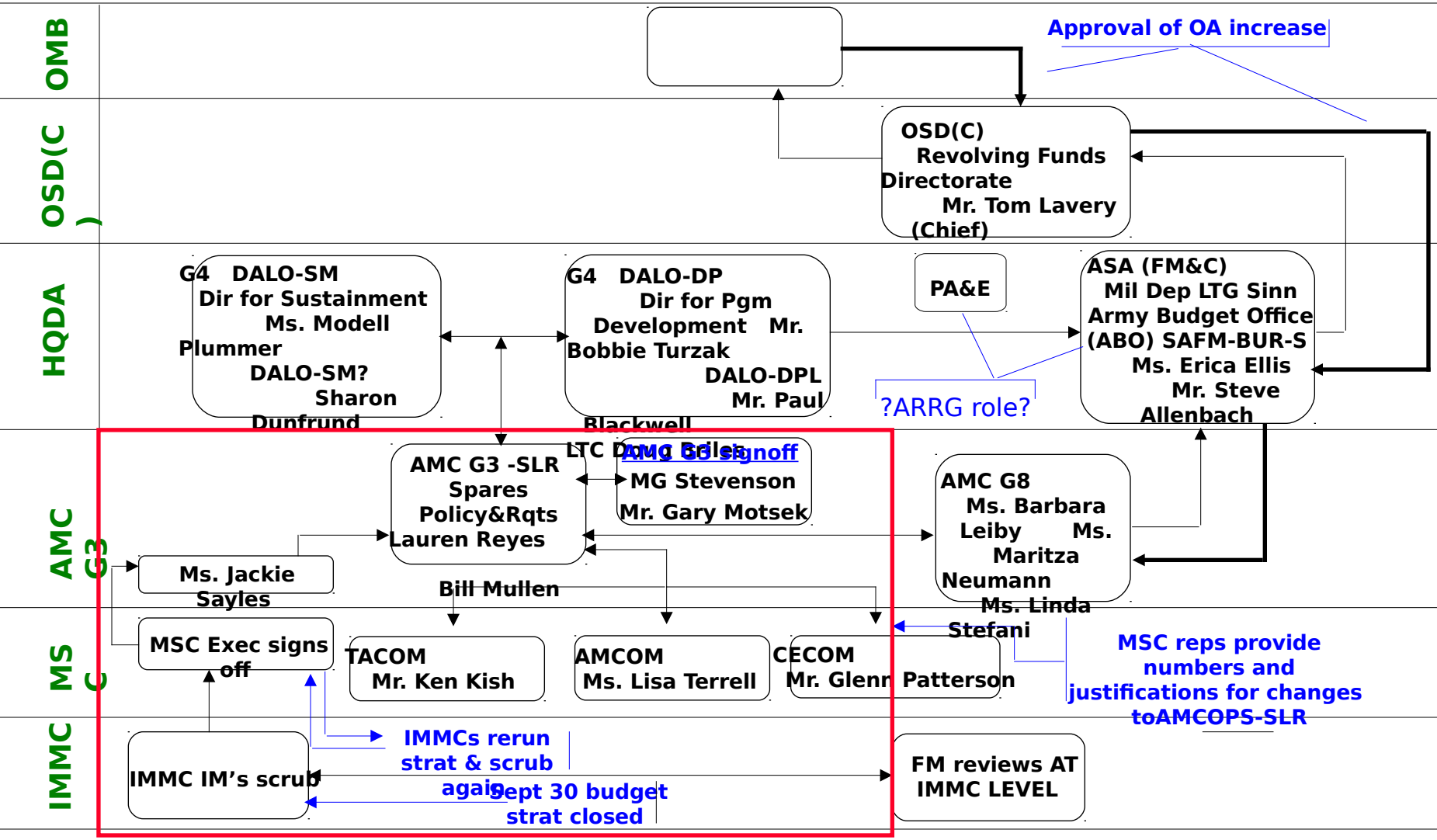
Source: Stratification reports

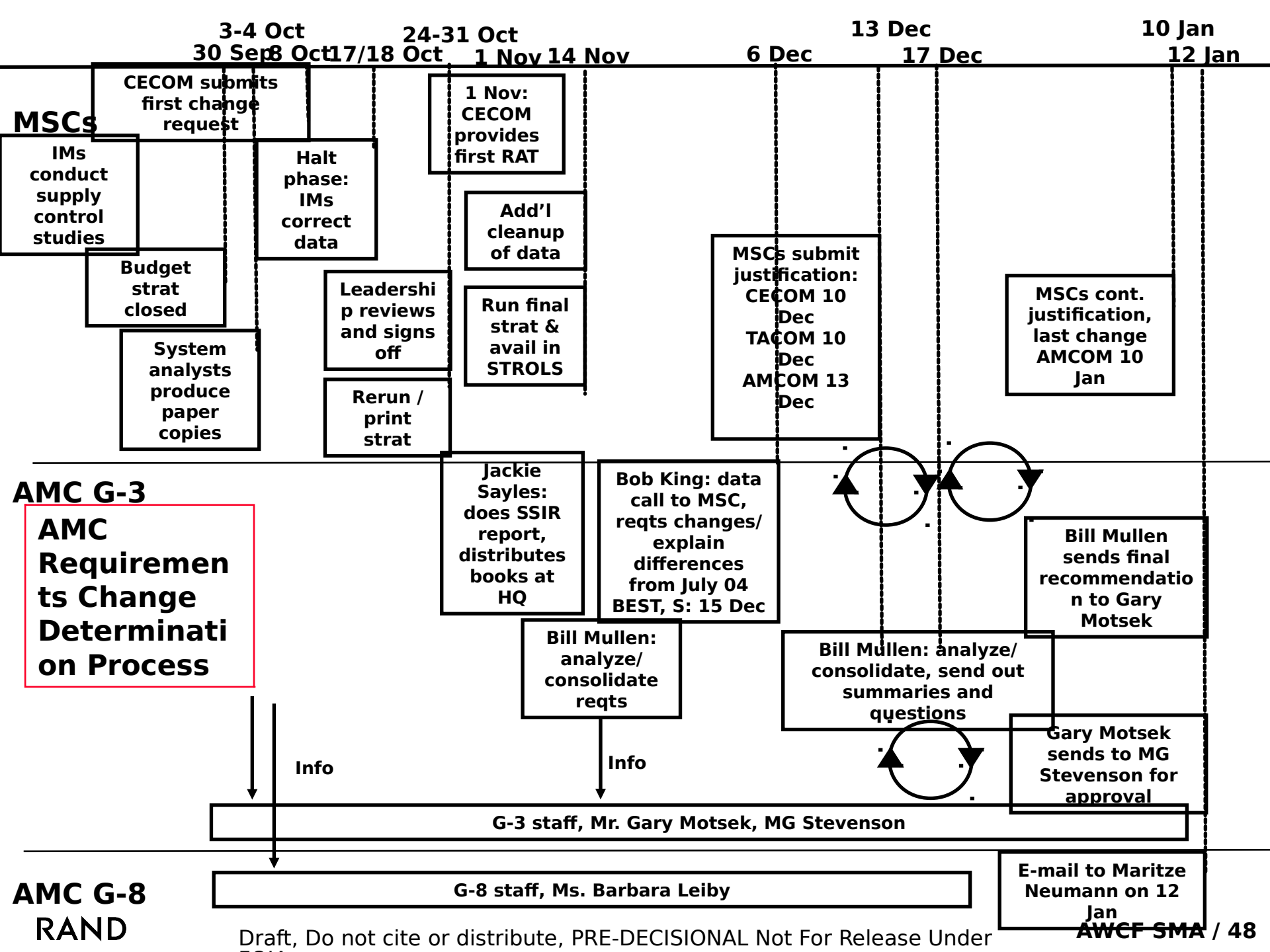
Due Ins Have Become an Increasing Percentage of the Inventory Position, As Appropriate with an Increase in Inventory Due to a Demand Increase



Source: Stratification reports

The AWCF OA Change Process Is Complex and Involves Many Organizations


OMB
OSD(C)
HQDA
AMC G3
MSC
IMMC
Approval of OA increase
OSD(C) Revolving Funds Directorate Mr. Tom Lavery (Chief)
G4 DALO-SM Dir for Sustainment Ms. Modell Plummer DALO-SM? Sharon Dunfrund
G4 DALO-DP Dir for Pgm Development Mr. Bobbie Turzak DALO-DPL Mr. Paul Blackwell
PA&E
?ARRG role?
ASA (FM&C) Mil Dep LTG Sinn Army Budget Office (ABO) SAFM-BUR-S Ms. Erica Ellis Mr. Steve Allenbach
LTC Doug Briles
AMC G3 signoff
AMC G3 -SLR Spares Policy&Rqts Lauren Reyes
MG Stevenson Mr. Gary Motsek
AMC G8 Ms. Barbara Leiby Ms. Maritza Neumann Ms. Linda Stefani
Ms. Jackie Sayles
Bill Mullen
MSC Exec signs off
TACOM Mr. Ken Kish
AMCOM Ms. Lisa Terrell
CECOM Mr. Glenn Patterson
MSC reps provide numbers and justifications for changes toAMCOPS-SLR
IMMC IM's scrub
IMMCs rerun strat & scrub again
Sept 30 budget strat closed
FM reviews AT IMMC LEVEL


3-4 Oct
30 Sep
8 Oct
17/18 Oct
24-31 Oct
1 Nov
14 Nov
6 Dec
13 Dec
17 Dec
10 Jan
12 Jan
MSCs
CECOM submits first change request
IMs conduct supply control studies
Halt phase: IMs correct data
1 Nov: CECOM provides first RAT
Add'l cleanup of data
Budget strat closed
Leadership reviews and signs off
Run final strat & avail in STROLS
MSCs submit justification: CECOM 10 Dec TACOM 10 Dec AMCOM 13 Dec
MSCs cont. justification, last change AMCOM 10 Jan
System analysts produce paper copies
Rerun / print strat
AMC G-3
AMC Requirements Change Determination Process
Jackie Sayles: does SSIR report, distributes books at HQ
Bob King: data call to MSC, reqts changes/ explain differences from July 04 BEST, S: 15 Dec
Bill Mullen sends final recommendation to Gary Motsek
Bill Mullen: analyze/ consolidate reqts
Bill Mullen: analyze/ consolidate, send out summaries and questions
Info
Info
Gary Motsek sends to MG Stevenson for approval
G-3 staff, Mr. Gary Motsek, MG Stevenson
AMC G-8
G-8 staff, Ms. Barbara Leiby
E-mail to Maritze Neumann on 12 Jan

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Recent Data Show Correlations Between Active Army AMI Backorder Rates and Readiness

Backorder rate is computed for requisitions passed to national level, by month of document
Significant correlations (one-tail test) highlighted

Overall backorder rate, not end item specific
Nov 03 – Oct 04

Fleet	Class IX	DLA	AMC
M1A1	-0.40	-0.18	-0.73
M1A2	0.41	0.61	-0.13
M2FOV	-0.24	0.02	-0.64
M3FOV	-0.38	-0.13	-0.69
PLS	-0.44	-0.25	-0.58
M931	0.31	0.16	0.49
HEMTT	0.01	0.18	-0.15
M109	-0.17	0.09	-0.53
AH64	0.00	0.20	-0.23
OH58	-0.06	0.26	-0.62
UH60	-0.14	0.13	-0.54
CH47	0.20	-0.02	0.45
M916	-0.64	-0.44	-0.84
RTCH	-0.15	0.12	-0.47
6k RTF	-0.64	-0.48	-0.60
10k RTF	0.11	0.34	-0.23
ATLAS	-0.28	-0.04	-0.62
Avg of these	-0.17	0.12	-0.59

EDA NIIN backorder rate by end item
Jan 02 – Dec 04

	Lag		
	Class IX	NAMI	AMC
M1A1	0.044	-0.196	0.144
M1A2	0.059	0.52	-0.386
M2IFV	-0.325	0.353	-0.633
M3CFV	0.189	0.621	-0.347
HEMTT	-0.163	0.162	-0.653
M109	0.075	0.062	0.018
AH64	-0.265	-0.076	-0.334
OH58	-0.512	-0.22	-0.493
UH60	-0.711	-0.693	-0.568
CH47	-0.376	-0.374	-0.295
SEE	0.204	0.146	-0.012
FMTV	-0.159	-0.054	-0.434
AVLB	0.181	0.084	0.196
HMMWV	-0.644	-0.564	-0.756
M198	-0.15	-0.237	-0.016
M9ACE	0.41	0.071	0.401

Notes: columns have correlations between the backorder rate for the indicated population of NIINs and equipment readiness—all class IX, DLA managed, AMC managed, and Non Army Managed Items (NAMI). EDA NIINs are those NIINs by end item that show up on daily deadline reports (O26 prints).

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